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THE FOUR ROUTES

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THE FOUR ROUTES

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FOREWORD

THE following study of the four Routes (Highways, Railways, Waterways and Airways) is concerned with ideas based upon an uninterrupted sequence of theoretical research combined with actual building in a variety of latitudes, and with the actual plans of cities. This ensemble has provided a case history as precise as something in the nature of a laboratory test. Furthermore, each element has been submitted to public opinion: that of the eventual user, the onlooker, the specialist, the critic.

Professional publications have spread these theses abroad, have opened the debate; Commissions and Committees have discussed them; the national press has also taken a hand.

Two currents of thought stand out to-day: on the one side youth and all the more vital forces of opinion; on the other a savage and reactionary opposition. Hard knocks, to say nothing of calumny and knavery, have been the order of the day. Books have been written against this new expression in the domain of building—the shelter of mankind—against the new spirit which is seeking to prepare a new age.

For the last fifteen years the author has been asked, all over the world, to state and explain his theories, asked to consult and advise Authorities, Trade Unions, Professional Societies, Universities and the Public. Foreigners have found in it a logical extension of French thought in a field in which France has shone for over a thousand years, in which she has shown an uninterrupted sequence of harmonious achievement.

CHRONOLOGY

(in relation to research leading up to the present volume)

- 1915: First principles of Prefabrication and, generally, of the contribution of heavy industry in the domain of building.
- 1922: 'Salon d'Automne': Theoretical study of a contemporary town of 3 million inhabitants; a suggested new type for the homes of a large city. Sketch of a Master Plan for the city of Paris.

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- 1925: Pavilion of *The New Spirit* at the International Exhibition of Decorative Arts, at Paris: actual reproduction of a multi-cellular block building for a large city; first finished proposal for a Master Plan of Paris; plan of the surroundings of Paris.
- 1930: Final elaboration of the thesis now universally known as 'The Radiant City'.
- 1937: Pavilion of *The New Age* at the International Exhibition of Art and Technique, at Paris: demonstration of the theories connected with the Radiant City; exact plans for the reconstruction of *Island No. 6*, the Insalubrious Island—a quarter of Paris. Another proposed Master Plan of Paris; Plan for Paris, 1937. A Plan for Rural Reconstruction.

Throughout this period the author has developed his theories and expounded them in some sixteen different books devoted, respectively, to the arrangement of the home, to architecture, and town-planning. Simultaneously, the same objective was pursued in the pages of the following reviews: *l'Esprit Nouveau* (1919–1925), *Plans* (1930–1932) and in the publication *Prélude* (1934–1939).

In spite of this consecutive exposition, misunderstandings still abound. The question is very deeply embedded in human emotions and its issues should continually be laid before those who have a right to form a judgement and who are able to do so.

We have now arrived at a point (in 1941) at which major questions of principle must be decided, and must guide the Government. Alternative points of view—often violently incompatible—must no longer be allowed to deviate our course, nor to prolong the present chaos within the building field in France.

Reconstruction after the ravages of war, rebuilding of devastated areas, is little more than an event of historic periodicity, anchored in time. But to rebuild our country because we must rebuild it, because reconstruction had become imperative for now over a hundred years, belongs to that order of events which is timeless—rooted in a natural evolution.

PART I

INTRODUCTION

1 WHEN PEACE TAKES OVER THE ROADS

WHEN at last the planes of war come down to a world at peace; when the fleets give up their sailors; when the rail roads and the land roads bring back their millions of soldiers to the home, that day will be no picnic for the authorities.

The declaration of peace will unleash momentous forces. But we must not allow ourselves to be carried along paths of abortive experiment. In our time, failure is inadmissible since things can be foreseen and thus forestalled. A vast dynamic energy will become available. To what uses shall we put it? By land, by water, by rail and in the air there will be a new call to arms.

There are five million men in the army; five to eight million men and women in armaments factories. Leaving for the moment the difficulties of demobilised men who expect to get back their old jobs, let us consider all those engaged in war production who will have to be switched over, without a break, to production for peace.

All our national industries have been hard hit and have had to adapt themselves to war-time needs. The prolific war monster has spawned its hundreds of new factories. A stupendous organisation grew up under picked men who supplied the needed impetus and enjoyed unlimited powers. For this reason, French industry since 1940 has taken a big step forward. Must we then, when armistice comes, fall back to the *status quo ante*? Already an appreciable number of factories have been scheduled for demolition. Is this really a wise decision? We fear a plethora of production. But might there not be devised a programme for peace which itself would call for a maximum productive effort? In any event, what is to happen to that enormous power potential with which war has covered our country? Must it come down with a crash, or can it be made to glide harmoniously into a planned activity for peace?

It has been said: we are concerned with war, nothing else: that is the prime necessity and that is enough. Necessity, agreed;

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enough, certainly not. We need a programme which will embrace all the fluctuations of the body politic. It would be shameful to lose the peace as the tide of victory recedes.

But why should we give to the architect any special significance in these momentous schemes? Because architecture and planning are entering upon a new phase; because they will attract new types of mind. In our four spheres, the planner of the future must care for farms, villages, and towns. And because in every centre of human activity (large or small) the occupations of man are still ill-housed (or not housed at all) we look to the planner for a solution.

The expansion of industry now allows the planner to work for the community with the same meticulous care, the same respect for craftsmanship and art which in the past were the glory of architecture, but were selfishly restricted to the single patron. Architecture and planning are two giant hands disposing in their proper order the interplay of groups and persons. The game is complex: the price of success or failure involves no less than the freedom of the individual and the expansion of a mass dynamic.

Town and Country Planning alone can incorporate the basic needs of man (shelter, food, sleep and leisure) into a harmonious ensemble. Only planning will be able to steer the masses away from bloody revolution and civil war; produce a much needed awakening, the riches of a new order. Our country must be rebuilt, renovated, galvanised into action. Thus we can obtain the desideratum of all revolutions: for each man his place in the sun.

Contemporary society suffers from a devastating sickness. Mechanisation, which should have been a remedy for all its ills, has been misapplied. We allowed it to upset our traditional mode of life with which it was unable to come to terms. In spite of isolated miracles, the machine age has not yet got into its stride. It has not been able to achieve its proper measure of abundance, nor learnt to bridge the gap and establish a new tradition of human happiness. Thus what should have been toiling humanity's means of freedom has come to be considered by many as little less than a calamity.

We must abandon our present narrow vision of mechanisation; get down under the surface and direct it to its proper ends. For, let us make no mistake about it, mechanisation can and, properly

directed, will develop into the incalculable riches of a completely new civilisation; no less.

An ever-pressing problem has come into being through the increasing prosperity of the masses. It can only be solved by the machine. But, so far, even the planners have to admit that the advent of mechanisation has only brutalised our lives; detrimentally affected the homes of men, our public buildings, even our point of view. In the interests of commercial greed it has degraded, defaced our surroundings. And by way of compensation for its squalor, it has offered no more than the shoddy comforts of the jerry-builder. Central heating and wheezy lifts in a few luxury flats will not mitigate this verdict. Thanks to certain disreputable negotiations about which the Council of State has already had something to say, Paris, outside the fortifications, has been surrounded by thirty kilometres of disgraceful shoddy. And this vile rubbish wasn't even cheap!

We know that our landscape is blotted by the outrage of the jobbing builder, and aerial photography has now revealed to us another cancer of our times: in the beautiful, ancient villages of France (allowed to crumble into ruins) a plethora of hovels unfit for human habitation.

In the very acuteness of the problem, however, we find its solution. To-morrow, there will be work for everyone; useful work; work which itself will evolve happiness and peace within the social order.

Our present dwellings are neither healthy nor large enough, they are veritable hells-upon-earth for children and adults alike. But Governments of the future will decree a type of super-home (the city radiant) which of itself both can and will regenerate the race. But a word of warning: don't forget the main plan!

During the war we have had to move our factories and our workers to places of safety; we have had to evacuate our civilian population, and all this has encouraged initiative. Let us now maintain it, but inspired by a central plan.

We are faced with a gigantic industrial conversion for the needs of peace. A scheme for this was already partly established at the Planners' Congress of Athens, in 1933: the Charter of the C.I.A.M. The authorities could scarcely do better than pay some attention to the daring but rational theories of that charter now. Could its principles be put into operation, we should waste no

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more time with poor reproductions of the past but develop for our country an appropriate and contemporary façade.

All this was already overdue before the war; it will be more than overdue now, but at least we shall have learnt something from the war itself. War has unleashed an era of movement, ousted stagnation, instituted works upon so vast a scale that into their framework the needs both of architecture and planning may now be fitted.

In war-time, quantity production, divorced from any considerations of quality, was the official requirement. But now the element of quality, or art, must be added and that is where architecture begins to come in. We are not for one moment considering putting a brake on production; that would be criminal in the circumstances, but it is even now possible for those in authority to abandon stereotyped views and adjust their minds to a really productive effort.

The men who trace the plans will already have a concrete vision of the next stage. It develops at first in their own minds and subsequently by impact of the plan upon the users-to-be. By means of such laboratory tests we can offer to the authorities irrefutable proof, the weighty backing of technical realities. Thus we shall be able to map the way for official procedure.

It should not be necessary, in the immediate developments of architecture and planning, to use pompous and heavy materials or to resort to intricate methods of assembly designed for permanency. Already before the war, such heavy and expensive extravaganzas had crushed under their weight all reasonable schemes designed in the spirit of this machine age.

Less substantial buildings, temporary or in any event of uncertain duration, will be adequate for our experiments. Premises of wooden planks or of plaster squares, of cobs or logs have been called upon in the emergency for the housing of the military, the civil service, workers, families, schools. In such circumstances it has been possible to introduce informal methods which, slightly revised, can easily be adapted to that new point of view which is, or should be, characteristic of our time.

Such provisional elements can be used as models for our future schemes; they will serve the purpose of a try-out.

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For instance, some of those innumerable hutments which have grown up in the villages and around them could become experimental social centres, municipal or rural; village clubs, child-welfare centres, emergency clinics and dispensaries, workshops for youth, local museums of folklore; they would even make excellent schools. Others, standing apart in the surrounding country, could become the moulds into which we eventually pour the immense movement of Youth Hostels, holiday camps, the requirements of that new public, the beneficiaries of 'holidays with full pay'. Important social activities can be fitted quite naturally into this existing framework.

Our war-time hutments, properly understood, might well be interpreted in terms of a predisposed plan which would lead us without any fuss to a speedy development of the social services. And it is because they are ready to hand in such abundance that an immediate social revival could be achieved. Personnel will gather round them, beneficiaries will try out new methods, the essential social function will be born and will find a home.

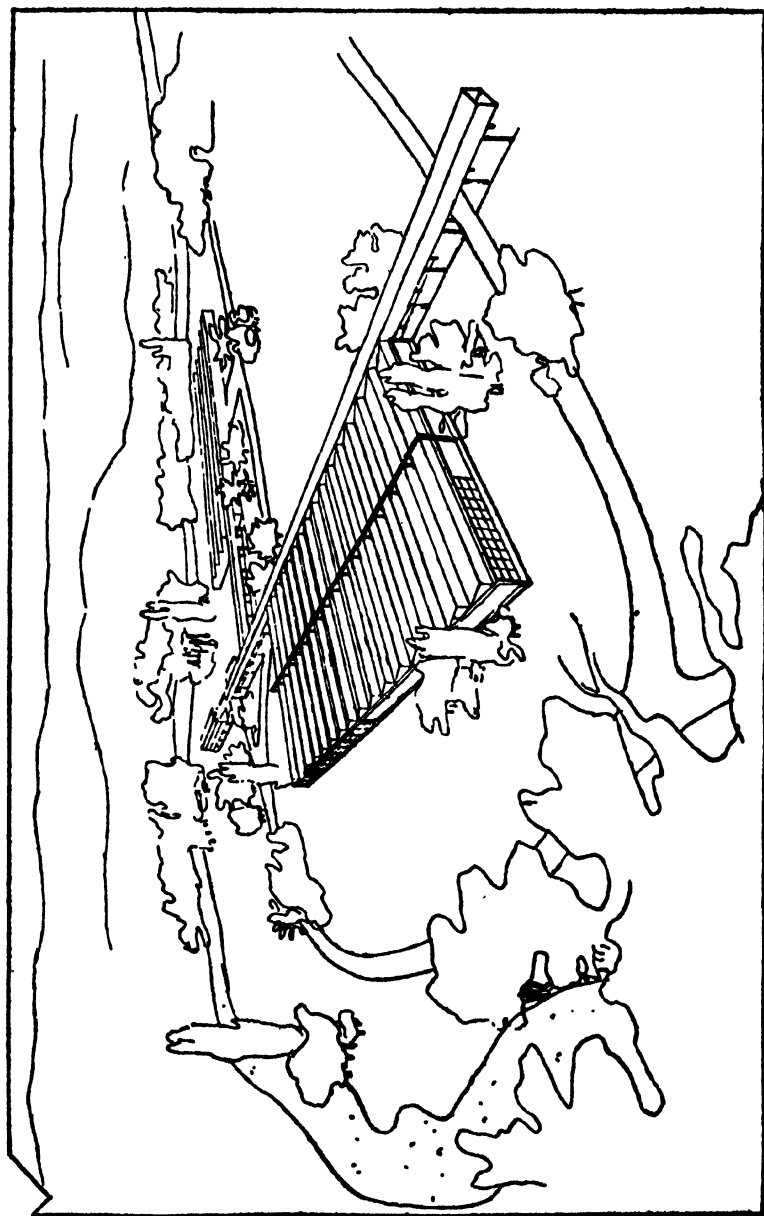
Many of our war factories, those which good fortune has placed upon a favourable site, can become the factories of the 'green belt', places where work (with tools or machine) will be completely changed. We can pass at one bound from the dismal surroundings of the past, into gay factories which make work seem friendly: a new environment for labour.

The second era of the machine age will spring from such realistic foundations.

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In war-time the far-sighted have realised immense possibilities in an alliance between the planners and industry. The war itself has bequeathed to the country a working plant. A quantity of the elements of home-making can be produced in factories: dry assembly; the prefabricated house. Provision of homes will become the largest, the most urgent, the most fruitful item of the industrial programme.

A gigantic programme: EQUIPMENT OF OUR TOWNS AND VILLAGES WITH NEW HOMES. A natural and fruitful interdependence of agriculture and industry will awaken the countryside. On the other hand, the ailing cities will be purified by means of a proper country planning: UNITY, SOLIDARITY.



Factory adjoining the Green Belt

The *Family Code*, in war-time, demanded an extensive production of homes. We still need legislation to this effect. We know that post-war industry is in a position to implement such a programme and, knowing this, we can see that legislation to that effect might itself develop a genuinely contemporary architecture. There is no reason why such modern architecture should not be as rich in sensibility and beauty as historic masterpieces which were rooted in social conditions incompatible with practical requirements to-day.

The old traditions had realised a harmonious relationship between man and his environment. From a totally different but harmonious ensemble, let us create a new tradition.

Architecture, during the war, has developed a super-laboratory. One feels that it might even have been the war's only *raison d'être* to open up the second era of the machine age: a more harmonious redistribution of our land: a new arrangement of cities and country, of farms and villages, of national housing and industry. And how cheerfully we shall travel the four routes towards a brave new world.

Our present war is only part of the hundred years' war which started with the first locomotive. Our war might well turn out to be the end of that one. Be that as it may, our own volcanic century can only have one possible solution: to find a good reason for living. The first hundred years' war produced tangible battlefields with corpses and real live Generals. But its subtle influences permeated far and wide: on the platforms of parliaments and political reunions; at international economic conferences; in the first attempt at a League of Nations. It was all the rage in books and manifestoes. Its influence was felt in plots, in political boycotts, in imprisonments, in exiles: it burst into slumps and booms in the world's great business centres, thereby creating poverty or riches for entire sections of the globe. Unemployment developed as the inevitable result of the machine. Time came when this phenomenon had to be taken into account, when it could no longer be explained away in terms of any temporary irregularity of markets. Unemployment develops in exact proportion to production; it thus became evident that periods of over-production would produce their slumps.

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Such unexpected results of the machine gave food for thought and the more open-minded spotted in the situation a germ of incalculable importance: the potential extension of *leisure*. Such leisure would not mean laziness, but on the contrary a terrific capacity for work; creative work in which personal initiative, the imagination, all the rich forces of man's nature would have a part. Furthermore, such work would be entirely disinterested, not to be bought or sold.

Leisure would offer an exit from the hell of that first machine age; would stand for happiness on every hearth. Leisure would wipe out the weary boredom of the hovel; must and will introduce a proper architecture and planning for our own time. And since leisure will require a man to spend more time in his room (Pascal's *desideratum*) a new concept of home will arise: an extension of the idea of home to take in the sun, all space and nature's green.

A home must cater for body and mind; for hygiene of the body and the spirit. A reason for living is beginning to open out; we have plumbed the depths of human misery. The programme is formidable but we shall not shirk the task because this is exactly what is required by the machine; the one and only answer to the machine's productive capacity. But, in future, the machine must be dedicated to the manufacture of objects of solid worth; no more anarchy; no more Brummagem!

The task comes well within the scope of our times; corresponds with our present needs. And we shall certainly not shirk it since we are fighting, in the main, for this: to give mankind a reason for living.

The hundred years' war is not merely European, it is a universal phenomenon and will appear more and more as such: it will not be finished at a stroke by any miraculous treaty. Its varied and ceaseless battles, repeated over territories still wounded and weakened by the last bout, will resolve into the final armageddon of Labour. By a simple inversion the positive will replace the negative struggle. Work, the manner in which we spend the hours of life, work whose vital significance and savour has been perverted by passions which drew their life-blood from outside its natural orbit; work, like bread, is an essential human food. No pabulum of metal or of paper: no muster of mere coins or of that cheap viaticum, the banknote; it is the very life-blood of the heart of man: a measure of sensibility.

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The workers' eight hours a day, or the sixteen summer hours of the peasant, can be heaven or hell at the choice of the individual. We are free agents, we control our ruling springs of action: joy or anger. The muddle and perversion of our times force one to this brutal statement; we have now come too far away from the reasonable and normal to allow the light of paradise to shine upon the work of man.

The daily purgatory of eight or even sixteen hours will be banished precisely in proportion to our ability in remoulding the social structure: we need collective enterprise on a vast scale, resolution in the heart of the individual. We must break, disintegrate, crush, demolish, clean out and banish all criminal slackness. The struggle is always on. But the battle of to-day foreshadows an era of construction.

We have been spending a thousand million francs a day for the purposes of war. The national peril obliged us to 'sweat' by the work of our hands or heads. And, we have it on official authority, 'we must maintain this same contribution in peace-time in order to supply new fields of battle which lie ahead': in order to rebuild our country and develop a new incentive for living.

The *mobilisation card*, product of impeccable military organisation, is a miracle which enables us, at an hour unknown, foreseen but always unexpected, suddenly to put an army on its feet, complete with all its equipment. By means of these simple slips of paper we can predetermine the presence of every man and every object in its right place. We must find a counterpart in peace-time: a *demobilisation card*. I have felt that clearly while preparing this book, because over and around the four routes appeared the task incumbent upon the second era of the machine age; a task which will require every man to be at his post, equipped with individual professional ability: muscular; technical; intellectual. And their will and their whole energies must be directed towards a single end.

After the storm of war, the calm of peace offers a new directive to effort; creating another symmetry: the rhythm of flux and reflux brings back an equipoise, upheavals in human affairs have no other reason than to serve as steps to scale the ladder to the stars. A new horizon offers: and to ensure our port, to ward off famine and catastrophe (the price of slackness), foresight becomes an essential duty. And foresight requires little more than to

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establish the proper continuity between a past now emptied of its substance and a future whose activities—precise, efficient, urgent—must start at once: not in some vague future, but to-morrow, to-morrow at the rising of the sun.

II THE VOCATION OF THE ARCHITECT

ONE might call it the finest of all vocations: sister to that of the painter and sculptor whose art, to-day, is infused by a new plastic expression: a vocation whose laws one embraces and incarnates and by means of which a harmony is finally expressed. Imagination on the march; poetry stepping down from the orchards of the mind, flowering in the finished work. The architect struggles to classify, to purify, to be practical, to arrive at the perfect solution; and satisfaction and full comprehension finally crown his task.

Eupalinos himself was not exactly free: the Greeks already worked within accepted standards—men, women, temples. The temple became almost immutable; it had a fixed rule. But that did not preclude imagination which appears more often in the quality of well-ordered schemes than in anarchy. Order shows up the tactics of the game, but it also reveals the amazing rôle that genius has played. One says of the musician, he plays well—or badly, and the same applies to all creative work.

The Romans had their methods with cement and bequeathed a legacy to the ages. The laws which grew out of the use of Roman cement lie embedded in the arches and cupolae of the Parthenon or in the Basilica of Constantine. On the 2nd of September 1939 I revisited the Pont du Gard. But that of course was in stone and was the outcome of a different concept. The Romans had also a method of road building, and sometimes we discover their traces in sites which involve the whole history and geography of Europe.

The masters of the Gothic used stone without cement. They became not so much moulders and founders as carpenters in stone. Their method expressed in Notre Dame at Paris (based on the orthogonal) was masterly. There is only one Notre Dame, and why is it at Paris? There is only one Parthenon, and why is it at Athens?

But since then we have lost our principles; the great *rule*.

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I love our exquisite French Renaissance, and I cannot estimate too highly the village carpenters and masons who followed its laws. But—shall I dare to say it?—in the pursuit of an all too personal lustre, the *Roi Soleil* injected a worm into the architectural order, and the decline set in: the plan, the cut, and the design of the structure no longer have that great and pure and irrefutable imprint of *the rule*. I do not underestimate the beauty of the masterpieces of his period. Inspired they often are, and well proportioned almost always. Nevertheless, the worm got in and turned the architecture out. And architecture, which should work from the inside out, thereupon proceeded backwards. A terrible decadence ensued.

And then came steel and the rule of steel; reinforced concrete and the rule of reinforced concrete. Scientific calculation came into play and the unlimited resources of the machine incited us to heights of daring. Never before the advent of steel and reinforced concrete had our calculations got so near to nature. We have now tapped the very heart of the laws of matter; established a close correspondence with natural forces. Never have the actual materials of building been as subtle, as accurate, precise, as those with which we are privileged to work to-day; admirable in their substance and flexible in the part they play. The laws which govern all this are now quite clear, but the final balance of harmony still eludes us; our attempts are still too heavy, unbalanced, without distinction. Nature herself juggles with difficulties and is profuse in miracles, in timely and ingenious successes. Our hands are not agile enough to compete with her; nevertheless, a magnificent adventure lies before us: to juggle with steel and concrete. We are calling all creative minds! We need you, masters of the plastic arts, poets, pioneers—better still, all these should now be combined in one man! And that will supply architecture with a *raison d'être*.

To-day, the function of planning is to apply suitable methods to each of the *four routes*. These routes go all over the country, and around them life is growing up again actuated also by a rule, but this time a new one: that of the modern conscience. After the storm in which will have foundered a civilisation at the end of its course, let us watch for the shape of things to come, for the new machine age.

The programme for peace is a programme of equipment: objec-

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tives and their ways and means: a progressive ordering of stages. The country's reconstruction involves us all: the worker in the factory, the peasant on the land, the technician with his plan and, last but not least, the schoolmaster (a technician also) in his school where youth is to be moulded. This rising generation must be made to understand the importance of its mission; to know that it is standing at the threshold of the *four routes* and of the second machine age.

But have we a thousand, have we a hundred, have we even ten architects ready to take their place in our four spheres and to express the austerity, the accuracy, the grace which the times demand? How many are fit to participate in the uninterrupted chain of issues which derive one from another, all part of a general synthesis from which could develop a new social conscience and procedure?

No, we are not ready. In better-integrated periods they had such men. We are still in our infancy. We must face the facts and let them be known, and then direct all our energy and enthusiasm towards an integration.

We find people, to-day, who can write that 'culture is going to the dogs', and who clamour to high heaven and enquire with anguish: 'Is architecture about to die?'

Which architecture is implied? Are we concerned with the last hundred years of corruption: with the boulevards, avenues, streets, houses, suburbs, palaces, casinos of the Côte d'Azur (or of Emerald, or of Chalk, for that matter!)? These are not architecture, but the abortions of architects whose only care was money.

The new architecture, based on the *four routes*, will require a very different approach, a loving care. The problem calls for enthusiasm, enlightenment, complete self-abnegation.

The teams are ready, the workers of the new architectural plan. Time is on our side: every day our number grows in aptitude, in understanding; they are ready to get to grips with the job. The *four routes* require their teams. Every team comprises the necessary scale of diverse talents. In football, the full-backs stay on the defensive, while the agile, the swift, the cunning, the daring go forward.

The architectural effort demanded by the *four routes* is unlimited. A single individual can no longer stand up to its require-

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ments. The planner of to-day must assume a crushing responsibility: omniscience, omnipotence are not to be found in the labour markets. As has happened progressively in Science and Technics, we shall soon be obliged to subdivide the new profession of architect into its appropriate specialisations. In those four spheres which our programme so clearly designates, the contractor, the engineer, the architect will form a natural sequence, they will combine and fuse. To-morrow's tasks will throw up a new protagonist: *the Builder*.¹ And here they are at their jobs, working side by side, *the Builders*!

Around the highroads, the planner will decide the general destiny of towns and their surrounding regions. One man will regulate the motor traffic, heavy vehicles and high-speed cars going from the country to the city and vice versa. Another will plan those modern works of art, the motor-ways, crossways, bridges over railway lines, and general bridges. A fourth will be in charge of multi-cellular blocks, their sites and surroundings, give them diversity, control their aspect; he will also design gardens and parks. And here is the man who will set up day nurseries, maternity welfare centres, schools, youth workshops, playgrounds and swimming baths. To another will fall the task of drawing up plans—supple and endlessly varied—of the flats themselves inside these great skeletons of steel. We shall have the specialist in matters of ventilation, of lighting, of air-conditioning, of the problems of insulation. A profusion of brilliant domestic equipment will come from metallurgical factories, and from a variety of workshops which are treating familiar substances or other less familiar by-products of heavy industry. The man who has this last sphere in hand will have to keep in close touch with managers, workers and machines. A specialist will be charged with a health centre in every multi-cellular block, called upon to express the modern direction of medicine in a health service. Another will install the equipment for physical culture in the large apartment houses: halls, mechanical set-up, heliotherapy. And someone must organise a communal food supply and domestic services. In the civic centres we shall require a specialist to build libraries, clubs, cinemas, shops, theatres, town halls, churches. And someone must

¹ *Builder* is here used with something of the wide implication of the term 'Empire Builder'; we have in mind little less than 'the man who is going to build a new world'! (Tr.)

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foresee the ideal spot for the future workers' quarters of the town, and their attendant shops. And last but not least comes the man who will design gay restaurants and cafés.

In the countryside, someone with a feeling for beauty must design our roads. Another will progressively plan our villages, gradually adding the sap of modern life to that of the fields—but without committing blunders because he will understand the agrarian problem. He will build silos, co-operatives, peasant clubs, rural schools and rural mechanical workshops. He will restore the farms whenever possible, and will install new farms of steel, product of the northern factories, to be set up on the site; the right shape in the right place.

Around the railroads the planner will have much to clear away. He will design clear-cut stations, and run the rails through green and pleasant lands; he will see to it that hangars and depots are kept spick and span. Others will equip carriages for comfort and efficiency: carriages for long journeys or for the short run.

The *Builder* of the waterways will be sinking his wet docks and establishing his piers; he will set up the main docks, oversee administrative equipment, regulate the traffic of trucks and lorries which add to or detract from the charm of ports. And then we shall have to rig out those vast floating hotels, the big liners, and let us see to it that the furnishings are good. And the specialist of waterways will control the locks and bridges of all types over the canals, he will protect the integrity of smiling river banks.

One man will distribute aerodromes; another will design and build them with their hangars and their workshops. And last (but important!) there is the man who from the air will spy out the rotten quarters of our cities, the bottlenecks of traffic circulation, the ravaged natural beauties of the landscape, the destruction of our architectural heritage; and will also discover available sites. In short, the *designer of cities*.

In the executive centres, in bureaux which will co-ordinate the problems of the *four routes*, they will adjust, inspire and *harmonise*, or unify.

And thus will be integrated the common factors of the *four routes*. The *Builder* will extract a common law, imbue the whole vast enterprise with beauty. He plays with overwhelming forces: the *RULE*: the four rules of the *four routes*. And he will stamp out

INTRODUCTION

those who through neglect, extortion, greed, imbecility and irresponsibility engender squalor. The ugly will no longer be tolerated; it betrays a technical blunder; it sins against the fundamental order.

To what wide horizons is the vocation of architect now open.

And thus, from the battlefields, from devastated cities, from mourning and the hate engendered by war, from penalties and triumphs will emerge the second era of the machine age.

'Abulistes, officer of Alexander's army, had made none of the required provisions for his troops. He had only collected three thousand talents of silver. Alexander ordered that this money be offered the horses for fodder, and since (very naturally) they refused it, he asked *what good is your contribution to me?* And immediately he had him put in chains and imprisoned!'—(Plutarch).

A northern schoolmaster used to talk to his pupils, boys from 10 to 12 years old, about problems of contemporary planning. He showed them in particular the pages of a book in which appeared complete plans of living quarters of the *radiant city* type.² The children were delighted.

'And why', they said one day, 'hasn't this yet been built?'

'Because the Government has no money.'

A little later they came back to the master and said: 'Well, Monsieur, we could take up a collection!'

It is for the younger, the awakening generation, that a new life must open up over the four routes. It is by the contributions of the whole country, by the arms and hands of the masses, that this new 'capital' will be created.

VÉZELAY, *September–October 1939*

* It is scarcely necessary to remind ourselves that the expression 'radiant city' applies to an entirely new conception of the modern city, the plans of which have been submitted to and fully discussed by public opinion for the last ten years. They have also been discussed in the national press and technical publications, have been presented to professional circles and international conferences. More exact information with regard to this subject appears later in the book.

PART II

THE FOUR ROUTES

III THE HIGHROADS

THE highroad has a history of over a thousand years, so have the waterways; the railroad is a hundred years old, the airways have just been born.

Roads, since the origins of man up to the machine age, were keyed to a walking pace: three miles an hour.

Waterways, from their earliest traces and up to the machine age, were keyed to wind power or the strength of a man's arms.

The railroad broke up the traditional rhythm which one had believed endemic to all human activity, it inaugurated hitherto unknown speed: forty miles an hour, eighty miles, from ten to twenty times faster. A godlike power but catastrophic.

The airways. . . When I was twenty years old, when Santos Dumont, Wright, Voisin had made their first flights, it was said: 'God will not allow it; men were made for the earth and birds for the air.' And now the birds have been beaten by a long chalk and our planes, which already have a speed of five hundred to the hour, will shortly do seven hundred. And when they achieve a thousand they will have caught up with the tempo of the sun and time itself will perhaps cease to be.

The road, which seemed immutable, was killed by the railway. With the advent of the motor-car it came to life again. It took on a new lease of life at twenty to thirty times higher speeds.

'Speed', child of the machine age, has transformed the world.

Speed has completely upset habits acquired throughout the centuries, the tempo of habits based upon the step of man and horse. The speed of trains, of liners, planes, the telegraph, the radio, have upset all our previous notions of the universe.

'Only the earth,' wrote Paul Morand; 'only the desert,' Saint-Exupéry might well have written, assessing the microscopic trace of man within the geographic immensity. But both of them do honour to human capacity, able to conquer space by miraculous speed.

And what could be more impressive than the disciplined effort

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which precedes these violent achievements, whether of the moving, tragic power of an express train forging into the night, swallowing the stations in the clamour of its pistons; the solemn departure of the *Normandie* and of her docking at the pier under the New York skyline; the frenzied take-off of a plane, whose ascending spiral reveals a capsized world, and then comes to rest at 13,000 feet, the total immobility of suspension.

What could be more thrilling than to map out, elbows on the counter of Messrs Cook and Company, a long journey which will start six months from now. 'On the morning of the 25th, at 7.35 a.m., your luggage will be collected at your house. Your train, at 9.30, at the Gare Saint-Lazare. . . .

'On the 10th, your business in New York finished, you must be at the Newark aerodrome at 10 a.m., having come through the Holland Tunnel in a taxi, and by that stupendous skyway which passes over the industrial quarters of New Jersey.

'The hydroplane, X, will land at Rio within a hundred yards of the business section of the city: on the 25th, towards mid-day, your sleeping-car will leave you on the "plantation", right in the centre of the virgin forest. You will have read a wide variety of magazines in the reading-room, seated in a large rotating arm-chair: you will have been looking at the scenery through the plate-glass windows, and that was well worth while.

'On the 3rd, you will embark at Santos at 6.15 p.m. for Buenos Aires. On the 30th, you will take the plane for Santiago from Chili, at 3 p.m. precisely, etc., etc. On the 4th, you will arrive at the Gare d'Orsay, at 8.15 a.m. Your luggage will be delivered to your house that same afternoon. . . . And for this four months' journey you will carry a small booklet of detachable tickets in your waistcoat pocket. . . . '

Poetry of efficiency, poetry to all who are attuned; a new ordering of time; a new use for that sense of order which the Greeks put into the grooves and entablatures of the Parthenon.

Spurred to their highest point of technical perfection by the requirements of speed, the *four routes* will show their best aspect to the world, or rather a wide variety of aspects: they can be seen, on the one hand, through the eye of a man on foot or a horseman (these are perennial, like nature herself); on the other by a man on a liner or a motorist; through a window in the blue train; by an airman: even if the pace of the train blurs the landscape, even

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if the headlong course of the plane gives almost an illusion of immobility.

And because of the emergence of a new spirit by which widened frontiers become the inevitable outcome of speed, because the very control once exercised (administration's *raison d'être*) was based on limitation, the administrator's world has crumbled.

The Road

Once upon a time the steps of man or horse took us from one door to the next, everything was linked together delicately, from concept to achievement. The advent of the railroad broke the continuity of this perfection, offered an alternative: from the door to the station; from one station to another; from the distant station to the distant home. And this applied as much to goods as to persons. Such a break with tradition, involving pressure of work throughout the twenty-four hours of night and day, caused artificial congestion around stations. It widened the gap between the city and the land.

The motor-car takes us from one door to the next. A twenty-four-hour cycle, under the influence of twenty or even thirty times higher speeds, suddenly enlarges our sphere of action; the sun revolves at a twenty times slower tempo. This is a revolution. The country (the earth) opens up on all sides: she offers herself once more. There are no more derelict regions; no waste places. The earth is accessible as a whole.

What will happen when the network of automobile roads has given off from its main trunk all those branches and finer twigs which will carry new life everywhere? The highroads will, from then on, perform a new function; will link together goods and people over the whole country, will link together goods and peasants, peasants and their production.

The road system was always there; the design of our highroads, deep and sound, often goes back to prehistoric days; it still serves us or can be made to serve. We must develop a lay-out for our peasant roads, roads designed to carry the wagon and the tractor. Renewal of the countryside; awakening!

A road is not just a measurable entity; a road is a plastic achievement in the bosom of nature. Geometry and nature combined have often evolved beauty, something that moved us: the

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Pont du Gard, perhaps, or some simple path through a Norman orchard leading to the door of a home. In the nineteenth century, the tracing of roads was often a brutal, technical assault on nature, without regard for the approaches or the country through which it passed. Around the highroads are trees, fields, meadows, sometimes a lovely vista onto the horizon. The road may be nursed, enriched by some happy improvisation: its outline, the lay-out of its surroundings call for thought and loving care, as with every other creative work of the mind. There are landscape architects with a sure technique, and now when we are about to open up our country roads again we must not forget that these lead (a kind of extended gateway) to the peasant's hearth. They must be loved and lovely. We have greenness and space; we must create a pastoral symphony with the roads of France.

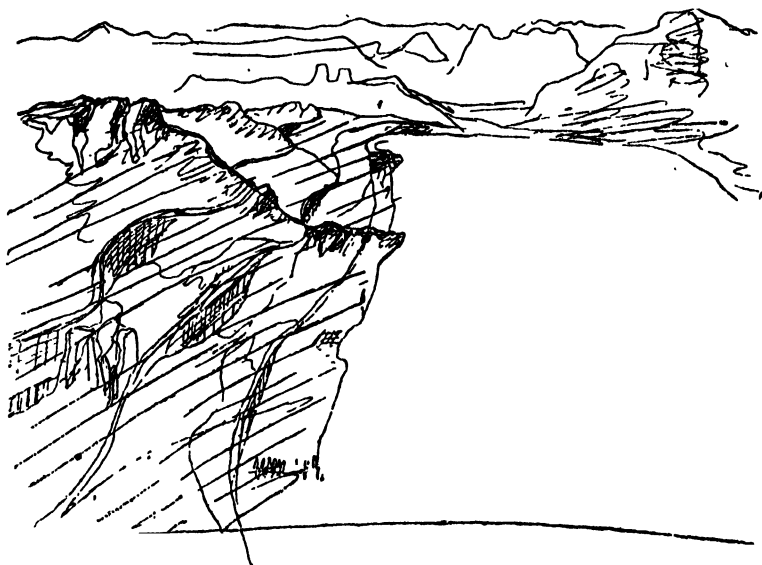
The classification of routes into motor speedways and footpaths (a luxury we owe to the machine; one of the ways by which the machine has atoned for the error of its early days), is not that in itself enough to make imagination leap, to open a wide perspective?

Some places seem like the balconies of the world. For instance, the gentle hills of the Riviera, set above its little bays; le Valais, at the outlet of the Rhône, where the waters of Lavaux pour in, in front of the Léman lake and the mountains; Rio de Janeiro, between dishevelled spurs; thousands of others, of which the most beautiful are still virgin territory, uninhabited by man. And starting from these balconies (bounteous peaks, with gently sloping laps) we might achieve a double objective: first to discover them and then live there.

To lay out motor speedways at different levels: at 60 feet, at 200, at 450. We must seek in the very heart of the site a base for our level curves: and immediately they settle at the foot of the mountain, express the natural movement of the landscape. In suitable places break away from earth-imposed conditions and in the open circus of vines, of rocks, of orchards, leave the solid basis of earth, stretch an imaginary cord before our eyes, and throw out our motor speedway as a viaduct. We shall then utilise the substructure of our viaduct by a superimposed mass of *homes*, arranged like the cells of a honeycomb. And each home, like any villa, can have its garden, a hanging garden. The viaduct itself digs deep into the bowels of the earth, preparing the way for the

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multi-cellular block. All is possible; all will be. Furthermore, our world balconies will be accessible from the ground at several points and can be connected with existing highroads. The *homes* become organically absorbed into their surroundings, and nature, left free, wild or cultivated, will remain independent and whole; no longer crushed under the weight of building 'developments'. And a vision of beauty, natural and sublime, will enter the homes of men through the window.



Routes, Lake Léman, also known as Lake of Geneva

We are just beginning to free our villages from the menace of the passing motorist. All well-being and security had departed from communities which for centuries were grouped around our main streets. A fireball rolling over the national roads had pierced their very heart. Accidents were the daily portion of the small communities of France. But now on the Paris to Nice run the road has been deviated at almost every village, glides round them, later to pick up the main thread. We shall see a great revival of communal life in our newly protected villages; the main street will become once more a public meeting-place; it will cease to be a corridor of terror.

Let us praise the Department of Bridges and Highways

Last summer, I went over the route Napoléon. There is an important lesson to be learnt there: life is linked with it in a variety of detailed achievement. This road is a crystallisation, a great poem of architectural landscape, although it was not built with that object in mind. The austerity of its design has brought about results which aesthetically move us. It does not merely offer works of art upon its surface; the road itself has become a work of art throughout its course. This road is the tangible expression of law and harmony, since every problem has been well solved. Intention: to carry people from Paris to Nice (faced constantly by tricky alternatives of lay-out), to carry them over the abyss and through the passes. The means of transport was to be the motor-car, which itself requires very special treatment. It has taken fifteen years to develop the whole system of automobile roads. (Who does not remember the old white roads with their odium of dust?) The present road system, glossy and flat, simultaneously hard and supple, stretches out like a ribbon of dark grey marble; according to the quarries tapped, of course, it might become eventually pink or jade. The treatment of bends, on the national roads, suddenly disentangles the main route, confronts us with stupendous vistas. Endless twists and turns, obstinate windings are taken in our stride; the road itself controls the car, there is no more danger.

The graceful issue of this struggle with natural forces draws from us a cry of admiration: Well played! For the road has drawn the car into its bosom; the run is faultless, miraculous, over the stretched cord. Well played, engineers and labourers! These new craftsmen of the road caress with hand and tool curves which once upon a time another type of craftsmen (in cherrywood, walnut and oak) carved to make beautiful arm-chairs. The science of the road-makers, based on two circumferences, has brought forth those most subtle of geometric forms: paraboloid, hyperboloid (since even awkward surfaces respond to order).

The road has carried all before it, even the splendour of the landscape: the long narrow defiles, alpine meadows, uplands with a border of mountains in the distance, and then those passes which cry: 'You shall not pass'. Nevertheless, one passes!

One is lost in admiration of the qualities of man, that he should ever have thought of coming to such dangerous places, there to wrestle with almost insurmountable difficulties. One is amazed that he should have been able to daunt wild nature, to make himself master, to throw up a series of grandiose, spectacular sites. And to cap it all, a hundred years later he launched that fiery monster, the car. Man is a reckless ant, obstinate, intelligent. He has known how to take possession of the earth, to occupy it, and will again produce the elation of daring achievement.

Here one finds both certitude and comfort: the conviction that whatever germinates in the mind can and will become a reality: that nothing is too gigantic for the powers of man, nothing need remain merely visionary. The road from Paris to Nice, the route Napoléon, has been developed for high-speed averages (thirty-fold), has been straightened, cleaned up, polished and made efficient in laps, with here a chunk lopped off, and there another. Soon, they will all have been linked together and a model lay-out finally achieved. Meanwhile, in Paris, realities get forgotten while the two sides argue, while vested interests manoeuvre, and the city dies for want of a sound principle of town-planning. Everywhere else, all over France, the work proceeds serenely, strong in the possession of a fundamental law. The road-makers of the Yonne, of Burgundy, of the Alpes Maritimes, all follow their catechism: the rule of the road. However much the landscape, the ground itself, the rock or the declivity might vary, these all become subordinate to the main intention. And that harmony which we so passionately seek within the complex problem of town-planning, an ordered synthesis, unifying diversity, is already to be found on the road.

Something to Remember

Eight years ago, we motored from Barcelona to Gibraltar along the sea coast, on the new Primo de Rivera speedway. For the first time in Spain, the provinces were interconnected: in the past, they had been linked only through the passes with the seat of government, Madrid.

This was the first speedway, clear-cut, neat borders painted white, raised turnings, finely placed vistas: the road led from the

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Pyrenees to North Africa. We felt its full impact at Figueras as soon as the frontier was crossed. All along the way the peasants were enjoying this new *instrument*, it was something belonging to them. Near Valencia, they were making much of it; those who lived by the wayside had richly bordered it with roses, shrubs and palm trees; it was also a public holiday, a *fête*. They came out to take part in the tradition of a thousand years; they came slap into the modern world. (Deep sociological considerations are involved: 'splendours and miseries' of man.)

And the lesson to be learned from this: mass enthusiasm would soon be stirred if one could start, anywhere, something really useful, really great; something which would enable men, from the word 'go', to realise that at last they could work in their own interest. The system of roadways already talks; what eloquence would pour from those sky-aspiring monsters which will shelter our *radiant* homes.

At Rio de Janeiro, about 1900, the Préfet Passos, out of a simple sea path, developed a system of avenues of dazzling beauty. They skirt the calm waters of the bay and then once past the Pao de Asucar, they come face to face with the great waves of the sea. The mosaic pavements, black and white marble, make lovely walks. Of a colonial city, charming and hidden in the trees, this other Haussmann has made the most dazzling township in the world. It is a port of call for big ships; the little bays stand out with their famous border. The city used to be timid, hidden in the hinterland; she has suddenly come to life. She has made a start; she will go from strength to strength. The traveller thinks he sees here the world's most beautiful city. And all from a simple mirage created by the road.

In the early days the Préfet, who was considered a madman, used sometimes to go at night with a demolition squad to the house of some owner who refused to evacuate. He would raze it to the ground. Next morning, the site was vacant; routine and selfish private interests had been vanquished. Methods pursued in the interests of the community must always be daring. That Society which spells its name with a capital S would soon disappear by such methods; but actually, it is rather the social structure itself which is dying.

The Street

In the city, the highway becomes a street. Nothing has been gained because, throughout the centuries, space has been measured with increasing parsimony. Nevertheless before the advent of the motor-car, we had adjusted ourselves to the girlish figure of the street (that street which should be a stalwart matron of our cities, themselves always built upon wide, impressive cross-roads).

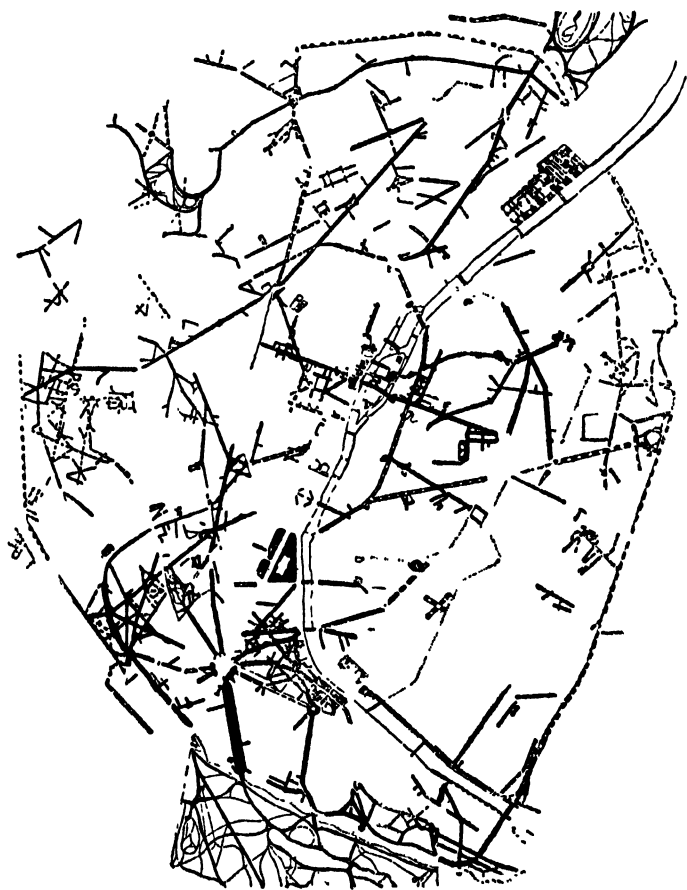
But with the dangerous growth of cities, due to the development of the machine age, and above all to the rush of motor vehicles by the hundred thousand, the cross-roads of the city have become intolerable. So much so that one would rather never go inside. Circulation is hell; torture of slowness, fines, accidents, waste of nervous energy, etc.

How can we remedy so complex a state of affairs? Can one raze all the houses of our cities to give the streets the width which they so badly need? Haussmann was daring, he cut through, he pulled down, he freed the sites. Less than a century later, he made the great streets of Paris worthy to become the hub of those laid out by Colbert.

It was Colbert who covered France with a great rectilinear system (too bad if everything that went on wheels had to sweat and gasp!) headlong over the country, up hill and down. These roads were characteristic of the spirit of the age of Louis XIV: to see everything straight and large.

Even to-day, Colbert's lay-out can still be adapted to terrific speeds; the surface, only, needs adjustment: and that is being admirably handled. Haussmann's own schemes were conceived in a large dimension; he gave Paris a majesty which made the city a magnet for his age. And, while the pickaxe demolished and the mason worked, the city flourished, white, spread over an enormous surface; a surface so large that to-day one is well repaid by setting it out on a sheet of paper in order to measure its full daring. This is another of man's achievements! Had we not had a Haussmann, a Napoleon, a Colbert, Paris to-day could not accommodate (even hugger-mugger as she does) her present avalanche of motor traffic.

The traffic problem is becoming ever more complex. Paris has



The Work of Haussmann

THE HIGHROADS

too many motor-cars, too many lorries, too many cyclists, too many pedestrians. The whole system of highways cries out for revolution.

Tunnels?

In the summer of 1939, a Commission was called by the department of the Ministère de l'Economie Nationale which deals with documentary evidence. Its object was to examine the schemes of a group of young planners, the G.E.C.U.S. (a group committed to the study of subterranean planning) with regard to the tunnels of Paris. Pundits of Transport (motor-buses, underground railways), of the Ministry of Food (for the central markets), Ministry of War (the side issues of defence) were present.

It was a generous gesture to allow the voice of the young to be heard. The plan of the G.E.C.U.S. is expressed in a diagonal scheme, showing a cross-cut of orthogonal axes; the picture of a system of underground tunnels sunk below the surface of Paris at a depth of 60 to 150 feet, and designed to relieve the present congestion of our streets.

The first day, the discussion ranged only around that section known as the Croix des Halles (district of the central markets), the north-south tunnel running from Montrouge to the back of the Gare du Nord, cutting at right-angles another tunnel which starts at the Bastille and comes out at the Place de la Concorde. I was asked to give my opinion. Before a Commission, I did not wish to criticise. I asked to be allowed to interview the authors of the scheme at my own office in order that they should report back to the Commission anything arising from our discussion which they might consider of value. In the meanwhile, the Commission recorded the following statements:

This tunnel of 8 kilometres would absorb all vehicles coming from the southern provinces towards the north and vice versa. But there exists no such traffic movement of any importance.

Reply: The tunnel as it goes, by means of helicoidal gradients, will clear away congestion from the big department stores, the Hôtel de Ville (equivalent of our Mansion House), from the ministries, and, above all, the central markets.

Motor circulation inside a tunnel tends to slow down. Inside the New York Holland Tunnel, which runs under the River Hudson, enormous notices invite one not to 'Go Slowly', but to 'Go Fast'.

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A tunnel inspires awe and traffic automatically decreases speed. And if, on the other hand, one were to arrange exits throughout the run, particularly at the stage of the central markets, drivers would be continually braking their cars. The interruption, added to the specific restrictions due to the tunnel itself, would tend to land us into almost the same precarious situation as now exists on the surface.

Reply: The tunnel would be a valuable instrument of evacuation in the case of war in the air (this Commission sat in the month of June 1939). The President of the Council made it known that he was favourable to all indirect defence work which might serve a useful purpose in time of peace: this tunnel could be used as a shelter during the bombardments.

But what about ventilation?

An intensive scheme of artificial ventilation has been devised. That would presuppose a formidable outlay.

And if, in the course of *a warning*, one section of the tunnel should become exposed to gas?

The tunnel would be insulated in sections by means of gas-proof partitions.

If the tunnels are to be a means of evacuating the population during air-raids, such partitions would defeat that end: we expect an interval of from 20 to 25 minutes between the alert and the release of the first bombs.

A general: One is very much afraid of over-large shelters.

The tunnel could shelter 100,000 people: the War Office estimates the cost of a perfect shelter at 30,000 francs per head.

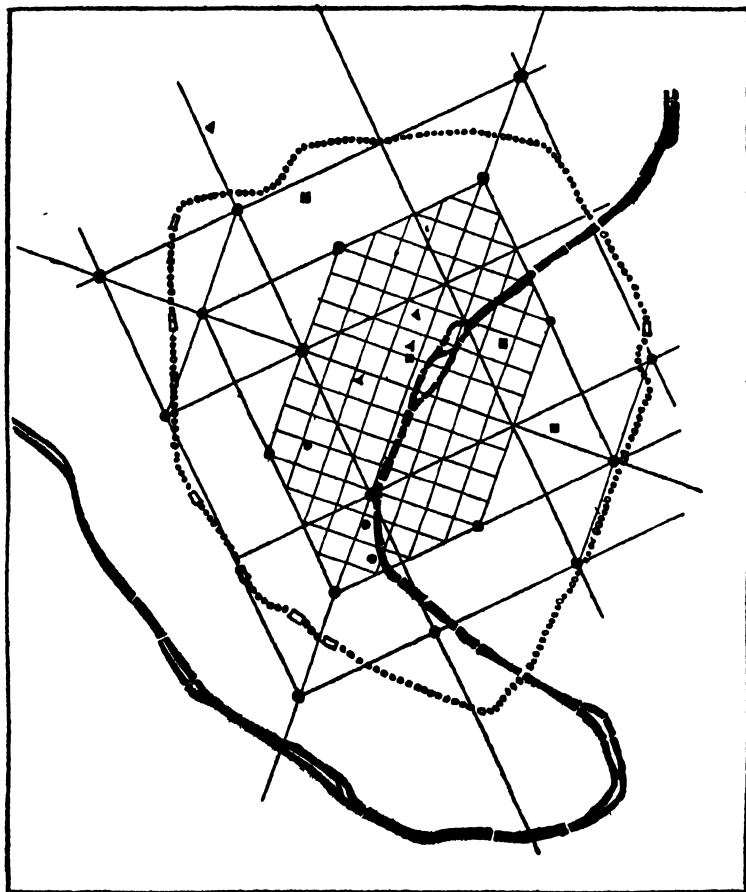
The general: That is why none have been built.

For a working road, 9 metres 50 wide, inside two *Tubes*, the cost would be a basic $1\frac{1}{4}$ milliards, $1\frac{1}{2}$ for the finished job.

Standard speeds for cars on the surface are, according to the hour of day, from 11, 15 to 25 kilometres an hour; a run of 4 kilometres on the surface would take 15 minutes, whereas, in the tunnel, it would take $8\frac{1}{2}$ minutes. But the lateral forkings, from a roadway 9 metres 50 wide (and you yourselves have admitted that in order to give the tunnel its *raison d'être*, such forkings or means of ingress would be numerous), would cancel out the advantage of greater speed.

The discussion was further pursued at my own studio.

The principle of a tunnel has always seemed to me to be un-



Tunnel of the G.E.C.U.S. (study group for subterranean planning)

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natural (to be, I mean, against nature). It would be legitimate to resort to it only when all else had failed. From the work which I myself have done concerning the problems of Paris, I should be inclined to admit a fragment of tunnel within the axis of the Boulevard Sébastopol before you get to the Rue de Rivoli, going under *la Cité* and reaching to behind the Panthéon. Such a tunnel would not have as its object to swallow up the whole of the city's circulation, but it would serve as a means of transit over a distance of one kilometre for a limited number of persons.

One other tunnel seems to be reasonable; it would start at the side of the Gare Saint-Lazare and, passing under the Champs-Élysées and the Seine, would come out at the Invalides. This would absorb that substantial circulation movement which exists between the two banks of the river, and we should be able to realise the following important reform: to empty the Champs-Élysées and the Concorde of its present traffic and to restore the priority of the pedestrian from the Etoile to the Hôtel de Ville (it would involve building that spinal column, from east to west of Paris, which has been in our plans since 1921, and which, at a distance of 800 metres from the Champs-Élysées, and on a parallel line, constitutes in our opinion a most important item of urban planning for the capital.

The figures: Your estimated cost is for 1½ milliards to shelter 100,000 people against the risks of aerial warfare. Our figures (Radiant-City figures) are as follows, specifically applied to that insalubrious *Ilot No. 6*, which comprises the first section of the Great East-West Crossing by means of a raised speedway (cross-cut with attendant services measures 120 metres wide). The budget for equipping the *Ilot No. 6* with *radiant* homes (sun, space, verdure, child-welfare, sport available at one's front door, 88 per cent of parkways for 12 per cent of built-up area), all this for the use of 25,000 inhabitants would cost 350 million francs. For 1½ milliards we could lodge 100,000 persons. I say *lodge*; please understand that we would supply the necessary dwellings with equipment, surrounded by all the desirable communal services and amenities, including even trees planted and green swards.

On his plan 'for aerial defence', General Vauthier (both in his books and at the fifth Congress of the C.I.A.M. at Paris, 1937 described the *Radiant City* as the only type capable of resisting aerial warfare (minimum vulnerability, armour-plated roofs with

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explosion-chambers, pile-work freeing the site³ and allowing for decontamination; during the alert, the population need not rush into holes but would go to the upper stories where, protected by several layers of flooring to say nothing of the armour-plated roof, they would breathe pure air, far above the zone of gases, etc.).

Carrying this tunnel scheme to its logical conclusion: when all your milliards have been spent and Paris has established an immense underground system of tunnels, Paris, on top, will have remained exactly as she is to-day: a city which urgently needs, by intelligent and consecutive steps, to be rebuilt. (Just as she has always been rebuilt throughout the ages.) In spite of your scheme, the houses of Paris will have remained exactly as they are now; and we shall still have to begin thinking about new homes. But if a sound principle were followed in the beginning, the circulation both of pedestrians and automobiles would automatically be regulated on the surface. And then, do you think that a single Parisian would be found willing to go down to the catacombs?

Paris is too spread out. Analysis has shown that within the scope of the old fortifications of Napoleon III—*intra muros*—one could (excluding historical sites, parks, working-class and business quarters) accommodate three million Parisians in large, multi-cellular blocks of *Radiant City* flats; after which we should find ourselves with at least one-half of the city's site unoccupied.

This being so, why seek in the development of suburbs (one of the most wasteful expenditures of our modern economic system) or in the subterranean experiments something which can normally develop on the surface; something which should automatically group itself round our highways. These great roads of ingress and egress, which cross and recross inside Paris, are established on a permanent bed. It is there that the city's urban life must converge, there that the city's eternal destiny must be played out. We must extract the maximum possible value from this site by means of the positive enterprise of our new urban planning: the only sensible and logical scheme; that is the proper *humane* solution.

New highroads of the city will replace the old street. The street is a hybrid, accommodating pedestrians and automobiles alike. From now on, we must distinguish clearly between rates of speed:

³ Readers familiar with M. le Corbusier's building will recognise this pile-work. (Tr.)

THE FOUR ROUTES

ordinary traffic; motor speedways; pedestrians. We shall have two kinds of roads, one exclusive to automobile traffic. These could be inserted at almost any point in our new lay-out for the development of Paris. The technique of 'city roads' has been scientifically established: twenty to thirty times higher speeds; we must no longer be constrained within the limits of a fourfold standard (12 miles an hour), reduced to that which represents the average pace of a city street. We must now take into consideration a rational planning which will allow for the following simple requirements: uninterrupted speed, one-way traffic, crossings at different levels. Under the pencil of the technician, marvellous clearance schemes have come to life; schemes harmonious in every detail and which also reveal an architectural beauty.

We reached a perfect understanding with our young friends of the G.E.C.U.S., whose patient and disinterested studies had made possible a very useful discussion which resulted in throwing some real light upon decisions to be made for the future of Paris.

Urgent Reminder of Immediate Issues

In June 1938, that official known as the Garde des Sceaux (Keeper of the Seals) took up with me the question, from the town-planner's standpoint, of the evacuation of Paris in case of air-raids; the following were the salient points of my reply:

(1) *As regards an immediate solution:* We do not believe any such solution possible since the whole question has been raised too late. If Paris were suddenly attacked from the air, as things are to-day, it would be impossible to improvise any quick transformation of existing conditions. We know what to expect: bottle-necks at every street; the same goes for the inner roads and for those which serve our normal holiday exodus from the metropolis; we could not better exemplify the latter than by picturing the recurrent dilemma of Sunday's returning crowds. It would be a stampede, and, in case of machine-gunning, a massacre.

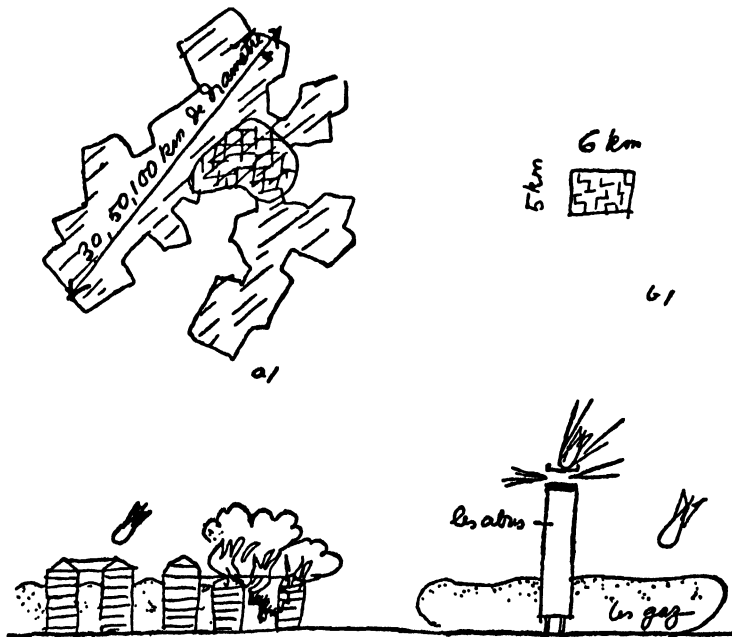
(2) *Considerations for a systematic and rational solution, not merely of the immediate need but bearing in mind the larger issue of the city's permanent well-being and vitality.*

For ourselves, since 1921, we have studied the question of town-planning, and in particular the case of Paris, not so much from the standpoint of possible air-raids as from that of the wider

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issue: the advent of the machine age which had plunged the city into complete confusion (functional, sociological, economic).

Later, we had as collaborators in research a number of military people who, in 1930, conscious of the menace from the air, began to study the problem of town-planning with a view to relief in the case of bombardment (landmines or gas): Colonel Vauthier (Adjutant-General of Marshal Pétain's Staff), in 1930; and later in 1934, the engineer Schoszberger, of Berlin.



Aerial Warfare

- (a) *Paris and suburbs as an immense vulnerable area*
- (b) *'Radiant City', shelters an equal number of the population*

It was then that, public opinion having been roused, investigators began to look into the whole question of the underground possibilities of Paris, thereby opening a door of considerable interest; interesting in our view not so much from the standpoint of air defences, but rather as offering certain fragmentary solutions for the permanent lay-out of the city.

In 1930, Colonel Vauthier published his book: *The Aerial*

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Danger and the Country's Future. He had made a conscientious study of the whole phenomenon of urban planning throughout the course of history and up to the present time, and having made acquaintance with our own solutions (in the type *Radiant City*) he finally declared these alone to be capable of adequate resistance to danger from the air.⁴

And what is the essence of the *Radiant City*?

As a result of modern technique in building, we have available entirely new processes in the art of building (steel and concrete). What past centuries were not able to do can be done to-day. As a result, we can dispose the sites of our cities in a totally new and different way.

Construction with steel and reinforced concrete allows us to erect buildings no longer just on four supporting walls but starting as a base from stakes (piles coming out of the ground) which are well able to support large buildings starting at 15 feet above ground level, and reaching in many instances to great heights. In this way:

(a) The ground is left entirely free, houses do not touch it. The city is thus set in the air, 15 feet above the ground.

(b) Steel and concrete construction gets rid once for all of supporting walls.

Thus our buildings have become elegant skeletons only, and façades can be entirely opened to the light and built of delicate materials, of glass or other filling.

(c) Taking an average building height of 150 feet in residential quarters, we might achieve a density of 1,000 persons to the hectare ($2\frac{1}{2}$ acres); this allows for the built-up area to be only 12 per cent of the total surface—the other 88 per cent would remain free to be utilised as parks and gardens (thus, the perfect home).

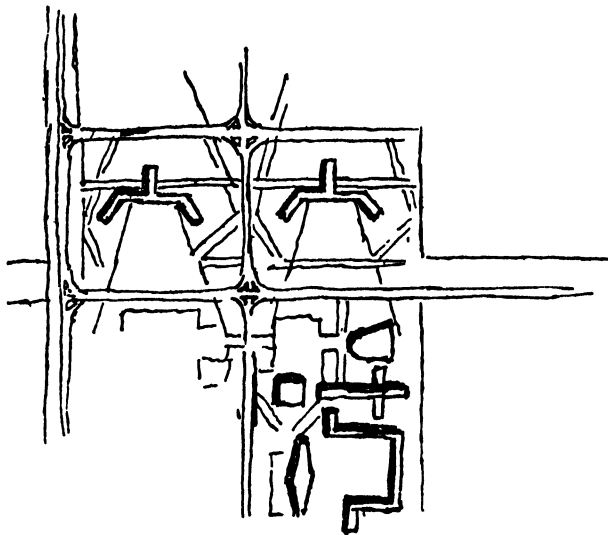
(d) If one erects to a height of 600 feet the few large centres necessary for housing a capital's administrative buildings (business offices, municipal and government H.Q., etc.) one could occupy a bare 5 per cent surface of the ground only in these business and administrative sections, and thus with ease achieve a density of 4,000 inhabitants to the hectare (the perfect office).

⁴ Interesting because, throughout the course of history, military requirements have always dictated, and therefore run concurrent with, the replanning of cities. (Tr.)

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(e) In these conditions, the normal density of towns or agglomerations of any description (from 600 in the slums to 350 in normal residential quarters and 150 for the garden suburbs) has been raised to one thousand or even up to four thousand: a super-density.

Conclusion: The city could contain, within the same area, three or four times as many inhabitants as before. This is not to be desired since large agglomerations are actually one of the diseases due to mechanistic evolution. One should rather desire a diminution of the population of cities through the removal of



4,000 inhabitants (workers) to the hectare

industries which are not indispensable, through the return to the land of part of that erstwhile country migration which has become stranded in cities. One ought to admit, for instance, that for Paris, a population of three million is enough.

To get to the bottom of the question: the surface of Paris *intra muros* (fortification of Napoleon III) is 76 square kilometres, or 7,600 hectares. But 3,000 hectares are enough to lodge three million people. Add to these 3,000 hectares the surface necessary for housing the administration (450), working-class estates (500), shops (120), the historical zone or monuments of national importance which should be most carefully preserved (245) and finally

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all existing parks (130). This leaves us with an available ground space of 33 square kilometres, that is to say, 3,300 hectares, exempt from building, absolutely free and open space.

One must insist upon the following fact: although in our calculations the density of residential quarters reaches the considerable figure of 1,000 inhabitants to the hectare, nevertheless a full 88 per cent of the city's habitable surface will be covered by parks and gardens; thus we shall have achieved the city with an inside *green belt*, something entirely new in the annals of planning.

The 3,300 hectares of unoccupied area of this new inner Paris will be seen to constitute a prodigious reserve. And our calculations have confirmed that such aerated cities which, from the air, present the picture of a thin filigree line occupying only 12 per cent of a territory, are *a priori* the best fitted to resist aerial warfare.

Let us demonstrate our point from another angle: all the cities of the world are now built upon the plan of *supporting walls* and *street corridors*, houses set in a straight line along the sides of the road, the roads themselves becoming something like narrow trenches. Inside those *islands* which are formed by the cross-cuts of three or four streets, the blocks of buildings have been pierced by courtyards, which are really deep wells.

Let us consider attack from the air in these circumstances:

(a) Aerial torpedoes: these will find a sure target within crowded built-up areas. Fire would spread with a maximum facility. Blast achieves disastrous results within this congestion (restricted space combined with the heavy mass resistance of the supporting walls). It is the old catastrophe which happened in Spain, which we knew some years ago.

(b) Noxious gases pour into our trench-like streets and into those wells which our courtyards provide; one can't get rid of them; they achieve a maximum result: the population is asphyxiated.

Remark: One of the results of the massive nature of our present traditional construction makes it impossible (technically and financially) to effect air-raid precautions at a reasonable cost by means of the armour-plated roof.

This situation is hopeless.

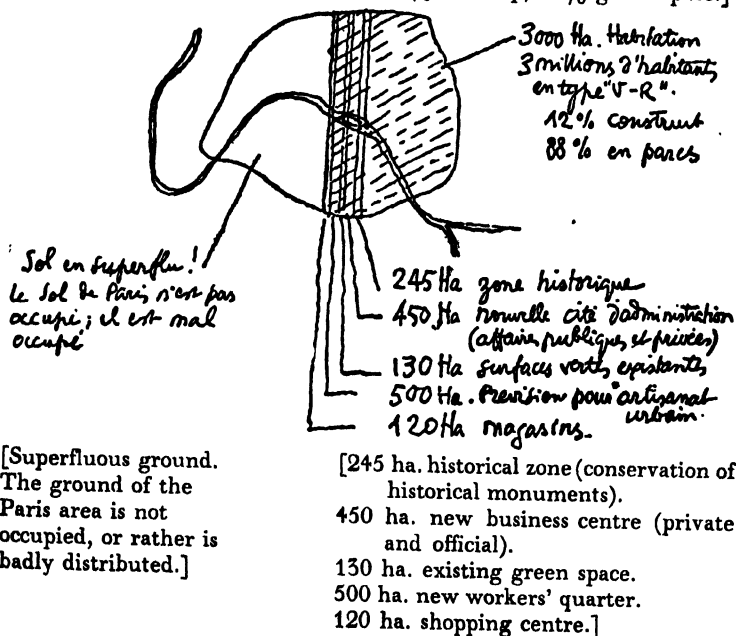
And now let us consider from the same point of view building of the *Radiant City* type. Let us particularly study the two essential types of building:

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(1) Dwelling-houses, 150 feet high, set upon stakes 15 feet from the ground, covering only 12 per cent of the available ground area, the blocks being spaced at 600, 900, 1,200 feet apart (or even farther).

(2) Administrative buildings (private offices, public services, Municipal and Trades Union centres, Ministries, etc.): 600 feet high, set upon stakes leaving a clearance of from 15-30 feet,

[3,000 ha. housing.
3 million inhabitants.
12% built up, 88% green space.]



Available Plots in Paris

occupying only 5 per cent of the available ground under the house, each one surrounded by gigantic spaces: side measurement about 1,200 feet long.

The vulnerability of such an arrangement is almost nil. Furthermore, when building them it is easy to collaborate with Air Defence Staffs and to equip them with bomb- and torpedo-proof roofing. This will be achieved by means of an upper storey con-

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tact-roof-terrace, and, underneath this, of an anti-explosion chamber; finally, of a well-plated floor able to resist any projectile which had not already exploded. That would be the crown of our buildings.

Buildings of such a nature are completely fire-proof.

The enormous open spaces around the foot of such structures would facilitate dilution of toxic gases, a natural process of ventilation would tend to clear them away since there would be no obstructing walls. They could even be fought with spurts of water from hydrants fed by all those large open-air swimming pools which will be a normal adjunct of the gardens surrounding residential (and even business) quarters in our *Radiant City*.

In the case of an alert, or attack from the air, the inhabitants, instead of being reduced to the desperate resources of throwing themselves into subterranean passages (these, by the way, do not even exist as yet!) which offer uncertain shelter, at best, and which might easily become collective tombs, need do no more than go up to the higher stories, where they can breathe pure air in safety. As a matter of fact, the normal equipment of such modern buildings as have been outlined here would always include air-conditioning, the functioning of which would be proof against air attack.

It will be seen that the thesis which I have just set out implies the organisation and procedure of Government and Municipal enterprise in the right direction. To the question 'What must we do to evacuate Paris in the case of attack from the air?' we are equipped to reply, not by mere improvisations in answer to the momentary need, but on the basis of studies pursued indefatigably for the last twenty years.

This reply will be profitable in that, instead of inciting to hurried and panic-ridden defensive measures, the object of which extends no further than the problematic attack from the air, it should induce us to consider the following fundamental duty: to develop by stages a proper solution of our permanent needs (indispensable, urgent), to materialise the profound productive urge of a modern city (biology incarnate).

Thus while we are decreeing defence measures for Paris, we shall in fact be realising a rational town-planning scheme for the

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machine age. Or, vice versa, in rationalising a plan for the city of Paris, to save her from the shameful chaos into which she is now plunged, we shall automatically satisfy the need for aerial defence.

A reform of the city of Paris can be envisaged simply as a series (developed by stages) of new residential and business quarters. It will be necessary from the start to take into account the flow of traffic and to develop on the spot means of dealing with new densities.

So far, we have been considering revolutionary town-planning; against all tradition, we have had in mind not the ground itself, but (for the moment) the built-up cubes,⁵ that which is *in the air*, upon it. We have taken a third dimension of height. The traditional procedure of town-planning is limited to two dimensions, relating to the earth only, width and depth; it has been upon such a plan (unreal, insubstantial) that the old-time planner traced lines designed to represent the eventual lay-out of streets and houses. Such a system of planning is bankrupt to-day. It must be replaced by the plan in three dimensions.

In view of the reformed methods which modern architecture has given us, we have been able to initiate a new and rational treatment more favourable to our homes and business centres: the multi-cellular block. And as a logical outcome of this, we have not neglected, as we went, to establish proper points of contact with the ground: arrival and departure: exit and entry, in short, the *Circulation problem*.

We are faced with a major requirement of the machine age: the fate of the motor-car must be decided. The present situation, in which pedestrians and cars are all tied up together, must go, once for all. *Automobiles and pedestrians must be kept apart*. The present lay-out is so ancient that it existed, in the main, even before carriages were introduced into cities (the first carriage was seen in Paris in the middle of the seventeenth century). It has been dominated, both as to dimension and fabric, by the imperious needs of the fortifications which limited the available building area of cities by a series of belts.

The present crossways are ridiculously close together: at every 60, 90, 120, 150 feet; rarely at 300. The normal pace of foot-passenger or horse accounted for this arrangement, but for the

⁵ Multi-cellular blocks. (Tr.)

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automobile, it is deadly. Such roads have indeed become a permanent menace to the very *raison d'être* of the car, which is speed.

We must now consider a readjustment of the road system for automobiles on a totally new and larger scale, that of a speed of 60 to 70 miles per hour. We should esteem a crossing normal which appeared at about every 400 yards. The system thus overhauled would call for one-way traffic as its logical outcome, together with crossings at different levels, thus avoiding excessive braking or an intolerable number of stops.

Finally, to complete the separation of pedestrian and motor traffic, these motor speedways would be raised 15 feet above the ground. All useful points of contact with the foot-passenger (and these can never be other than the actual door of the house) are allowed for by the main plan since that, in any event, has placed the buildings at least 200 yards apart. The doorways to these large buildings (blocks) will thus constitute the automobile's port-of-call and will be linked up with the speedway. Pedestrians on the normal surface, surrounded by trees, can come and go over a network of roads (orthogonal, diagonal, winding) in all directions, completely protected from motor traffic.

We can rearrange the Paris road system by separating pedestrians and motor traffic.

Having given the city its new molecular constitution, its new urban tissue, we must bring to it a heart, a centre, of life-blood which will feed each individual element. This heart-centre will have two functions: to absorb all the small currents of circulation into the main traffic of the speedways; these long-distance motorways will drain the city's territory and lead out into the wider national system of the provinces.

And this is where we can begin to formulate the only possible answer to that question: 'What can we do to ensure an orderly exodus of the population and a reasonable maintenance of public services in the case of air bombardment?'

Such a cardiac centre for the network of motor-roads of Paris would not require any overwhelming outlay. Study of our plan shows that traffic 'irrigation' of the city's different quarters can be made to coincide with the traffic movement of the big national roads.

Let us then immediately establish the proper position for these essential axes, their number and, above all, their capacity for

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supply (what can they produce in the matter of width and general lay-out of motor tracks).

Here the plan shows that Paris can be entirely connected with the big provincial motor-roads by means of five interior speed-ways, starting from one enormous centre. These would run as follows:

(1) The big East-West passage which leads into the motor-ways of Rouen-Le Havre, then Deauville-Cherbourg, to the West; from Nancy-Strasbourg, then from Dijon to Geneva, in the East.

(2) The Northern motor-way which leads in one direction to Amiens-Calais, in the other to Lille-Brussels and Reims-Frankfurt.

(3) The South-western road which leads to Rennes-Brest and to Bordeaux-Biarritz, and the South-eastern going to Orleans-Toulouse and Lyons-Marseille-Menton.

The exodus from Paris will thus become normal.

The natural complement of these motor-ways will be four main motor-car *stations*⁶ distributed at their proper places throughout the plan.

As we read the plan, we see that the important existing schemes—those of Haussmann, of Napoleon I, of Louis XIV—would supply a magnificent network of secondary circulation. This existing secondary system of roads could be linked up with the five great motor-ways on the one hand, and with the new decongested areas, residential and business quarters, on the other.

Conclusion from what was said at the beginning of this note: cities as we find them to-day or which are developing along traditional lines, are destined to total destruction from the air (our bodies and possessions), one must have no illusions.

It is interesting to note that in our reply to the Authority's question, we have actually (without seeking to do so) linked up again with the traditions of a thousand years: military defence has always conditioned town-planning; in the past it has been mainly a hindrance, but now it can and will be a liberating force.

PARIS, 28th June 1938

NOTE: Berlin has decided to open two enormous axes in the shape of a cross. This can only be designed as aerial defence (evacuation problem).

⁶ Stations of the Waterloo, Charing Cross type, not mere car parks! (Tr.)

New Circulation Methods inside Paris

Do we want to see it through and really get rid of our bottle-necks, or do we just intend to skate around the question?

Do we wish to save Paris and other cities of this machine age, or shall we hypocritically continue to whine before the Weeping Wall?

Paris could be saved, but cries of horror arise whenever the slightest sound and effective proposal is made; in the meanwhile under cover the city is at least allowed to perish and often actively destroyed. We have as an example the official plan for the re-ordering of the Saint-Germain-des-Prés quarter (prepared, one might add, *in camera*). This plan would wipe out that infinitely respect-worthy, that *pure* Parisian quarter, so full of charm. And at the end of it all, absolutely nothing will have been done to improve the circulation or supply decent homes; on the contrary, complete chaos will have been achieved.

We have already seen the construction of forty-five little cardboard dioramas, electrically lighted, in 1937, when the city officially participated in the Exposition Internationale des Arts et Techniques. And all that these promised was the future profanation of 45 venerable sites. Historic monuments had been saved, by means of widening, cutting through and the demolition of old houses, together with their reconstruction in that style which enjoys the favour of our aediles (the bridgehead, Pont Neuf, at the Rue Dauphine). Dimensions had been fixed to the traditional scale. The salvaged treasure had in fact been effectively killed; it stood there, herald of truth, crying in the midst of false witnesses. Forty-five shoddy designs, murdering beauty, vilifying truth (the historic treasures of architecture and their natural setting had been the victims of this ill-founded official activity).

But let us turn rather in the direction of hope, of optimism, of the future. The constructive proposals of authentic town-planning give to the city its essential heart-centre which once again (tradition confirmed) links the provincial roads (those of Colbert, of the Middle Ages, of the Romans, the Gauls) with that heart, but at a new scale, the scale of the car.

As a matter of fact, Paris (having been dowered by the State with a special Department of the Paris Region) efficiently man-

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ages incoming motor traffic all round the circumference. But one has to get into Paris. That's the rub! We might as well do it properly while we're about it.

'Nevertheless, in spite of a praiseworthy desire to reach some quick solution which would serve as a model for the whole country, we cannot risk isolated decisions apart from a general plan.

'A recent example confirms this: the newspapers published several months ago a reproduction of the cut-through from Paris to Saint-Germain-en-Laye. Unanimously, they saw in this magnificent conception a solution really worthy of our times. As a matter of fact, the scheme was devised in the reign of Henri IV!

'The cut Paris-Saint-Germain prolongs for 24 kilometres the axis of the Tuileries, Champs-Élysées, Grande Armée, Avenue de Neuilly. It would become the great western exit from the city (automobiles), the vital axis of a new residential township (this was the intention of its promoters) which would be built along its borders. It would be the largest artery of Paris, would become the means of circulating the necessary life-blood to the new outer city, would relieve Paris itself, hemmed in on all sides. With so many words, one can do great things!

'But this colossal artery will end up in a cul-de-sac, no less; the Louvre. Behind the Louvre: Saint-Germain-l'Auxerrois, and behind that again, the Hôtel de Ville. To the right and to the left are roads which to-day are incapable of absorbing the circulation of traffic: Etoile, Rond-Point, Concorde, Place des Pyramides, Place du Théâtre-Français, Boulevard de Sébastopol. Bottle-necks everywhere. This enormous artery, then, presumed to have an intensive flow capacity, could not be emptied on its arrival into Paris.

'We propose: instead of a cul-de-sac, a through-cut right across Paris, which would also go from East to West.

'This would be impossible at the Champs-Élysées, but everything indicates that it could be done on a parallel line, to the right of the Opéra, for instance, going from Levallois to Vincennes, giving real relief, at last, to Paris.

'Furthermore, the scope of the Avenue des Champs-Élysées is notoriously insufficient to cope with the current traffic requirements.

'A main artery of a modern city must be very wide, but also it

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calls for a variety of new equipment of which a speedway, without level crossings, is one.

'To enlarge the Champs-Élysées is not to be contemplated: that would waste enormous sums of money.

'And this is where a decision based on principle comes in: ought one, in any event, to legislate with a view to enlarging existing roads?

'Or, since the whole phenomenon of modern circulation is something new in the history of the human race, must we not admit the urgent need for new and radical methods?

'To the principle of "widening", which we will call the methods of the doctor, shall we not prefer that of the breakthrough, which we might call surgery?

'Urban medical tinkering seems to us fated to cost the patient dear (profitless expropriation, burdensome, since there will be no stabilisation of the value of the adjoining sites).

'Surgery, on the other hand, seems to represent the basic principle of modern town-planning because it is easy, quick, straightforward, efficacious and remunerative (expropriation on a grand scale of sectors having no commercial value, but eventual gain will be ensured through an authentic stabilisation of values throughout all the zones thus opened up).

'The mere attempt to widen our reasonably satisfactory roads still leaves us with the whole jungle of those which are unsatisfactory. But cutting ruthlessly into the jungle brings out new routes and will give us, in addition, more satisfactory roads.'

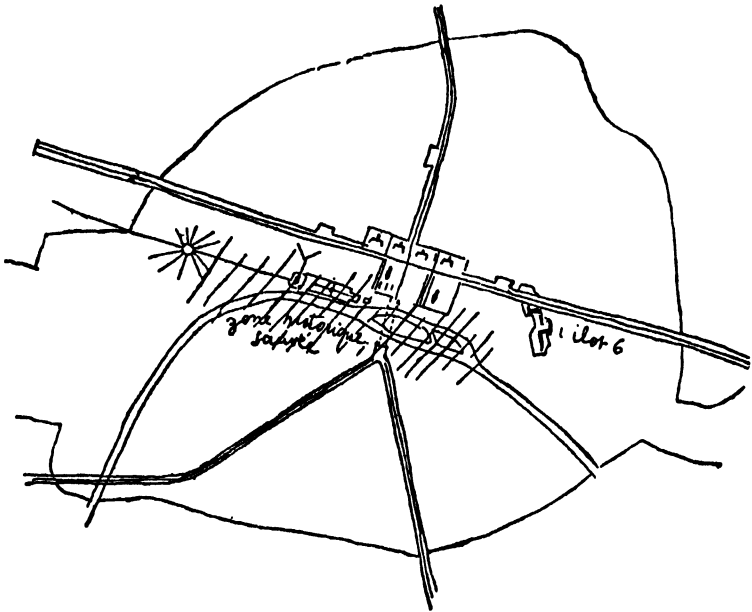
Here then are the five great branch roads, bringing new blood into Paris. Once these five branches have been put in hand, everything will begin to move: private enterprise will rise as one man, greedy to take advantage of the new forces; it will wish to play a part, bit by bit, in the great revival of urban activity, along the five branch roads which, passing through the heart or centre, will have brought this new life. Historic Paris will be wholly preserved inside lovely parks and gardens and not merely kept up in its present niggardly manner, eaten by rot. Precise plans

⁷ 'Towards Paris of the Machine Age.' Supplement to *Bulletin du Redressement Français*, 15th February 1928.

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are in existence which prove that the development could be achieved by successive stages without ever upsetting any region adjoining the sector worked; these plans, I repeat, are exact and to-day are in the hands of our aediles.

In the meantime, in probably much more difficult conditions, Stockholm has built, at the very crux of its bottle-neck, a lay-out based on identical theses; New York, on the Hudson side, and within the orbit of all that violent movement which centres round a port, has developed a new road system.



The Five Parisian Axes

Once I was visited by an American lady: 'I am the daughter of the President of the American Committee for Road Intersection', she said. She explained to me how the traffic evil had reached its zenith in the U.S.A.; the Government had appointed a centre of study for every potential type of road intersection, *urbi et orbi*. To each problem there is only one perfect solution. It's a matter of mathematics. 'My father has sent you this large sheet of typical intersection plans, under his signature, because fifteen years ago you were the first to raise the problem in your

city plans; you were the first to offer a solution.' This was about 1936.

Reproductions in the popular press and in magazines subsequently made known to public opinion the fruit of the impressive work achieved by the Committee. These included: the entrance from Connecticut, by motor-way, over the East River bridge at Manhattan, together with its offshoots, the whole in terms of a truly noble outline; another new and admirable system of city roads on the bank of the Hudson, also, at Manhattan, on Riverside: roads serving the docks, piers for liners, routes serving the riverside quarters, off Central Park; the road connecting with Washington Bridge, that fabulous construction with the unique span of three thousand feet. These colossal works have just been finished. Oh, when the Americans once get moving! And here they are to-day, launched on their new city roads and speeding freely, thanks to this new instrument, and thinking with pride, but perhaps already the shadow of a doubt, about those terrible sentinels, the skyscrapers. A hundred yards away, the city of Manhattan suffocates in the grip of an insoluble circulation problem. But be patient, the Americans have great potentialities.

While such things are being done, one wonders whether it might be possible for Paris to achieve a fragmentary road-cut, forgotten detail of a plan of Henri IV.

The streets of Paris have been recast times without number. There is plenty of available space in those dead quarters behind the Hôtel de Ville, left and right of the Boulevard Sébastopol, to lay out a trefoil (but with four cusps) and a grid from which to start the big motor-ways.

Here, as was done at Algiers, for the Kasbah and the Arab palaces, all the much-loved and respected witnesses of the past will not only be protected but rediscovered by the public.

And here, as at Barcelona, there are street cañons into which has been sunk a history which is worth handing on: those picturesque corridors will become the cavalcade of history set in the surrounding verdure, and behind their well-kept façade we can develop new arrangements corresponding to actual and specific needs (working-class quarters, small businesses, etc.). At Barcelona several of these pathways of the old city were reserved for foot-passengers; pathways on which they could follow an old,

natural route, slipping in and out of street and little old *places*, without ever leaving the original, historic track. To widen these venerable ways, according to the accepted methods of town-planning, is to kill them outright.

It has been said that they would be rebuilt 'in the same style' (as at Berne). And then the whole city will become pastiche. No, the trajectory must be created 'outside', 'across', 'behind', on a totally new beat. The old historic ways, to which a natural sensibility attaches, will be like those electric wires which, inside a motor chassis, leave a dominant place to the motor. And these legacies from the past will become the favourite walks of the 'solitary dreamer' or of sightseers, but will have been saved once for all and protected from the onslaught of the modern world.

It is a matter of great urgency to separate foot-passengers and motor traffic by such solutions as we set forth in the *Ville Radieuse* (Radiant City).⁸

A motor-road made of reinforced concrete, at a height of 15 feet above ground, raised on piles, will run straight through as is proper to such a means of rapid circulation and will give off deputy branches to the right and to the left. Thus, the ground itself will be left to foot-passengers, and supply the elements of sun, space and verdure to our new homes. *The street is no more*. The street has become the new city road, arterial road, the speedway.

The principle itself is evolved from the inevitability of processes which govern the multi-cellular block with its raised approaches for cars, its approaches on the ground itself now become free for foot-passengers. The solution falls automatically within the proper scale dictated by the built-up cube. This new scale or size is one of the triumphs of modern technique.

The technique of the multi-cellular block makes it possible to install all the organs of a *radiant home*, both inside and out: the home, admirable in itself, will extend its influence outside its walls, by child-welfare centres, by facilities for sport on one's doorstep, by studios for youth, and these progressive measures

⁸ Review *Plans*, 1930-32, and *La Ville Radieuse*, 1935. 'Death of the Street. Circulation.' Pages 119-26.

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will be completed on the inside by reasonable catering and health services (cultivation of health, medical consultation, physical culture and heliotherapy—in short, a joyous activity throughout the twenty-four hours).

Town-planning is the science of the multi-cellular block; it is the diametrical opposite of that inextricable chaos of town-planning as we know it, which involves: *the victimisation inherent in streets, which is an outcome of blocks of aligned buildings with their inside courtyards*; the immediate paralysis and permanent menace as regards traffic circulation; the worst possible disposition of homes. In our new scheme the individual will be master of the sun, of space, of trees, of the earth, whereas he used to be beaten, molested on all sides; exposed to noise, to danger, to decay, to enforced passivity and . . . victim-designate of aerial warfare.

Such theories are spreading. The Americans, at their World Fair, submitted them to public opinion by means of an enormous model of a modern city. And one can well understand why they did it. Having been the first to start modern technique, they applied it in a fragmentary manner in the skyscraper. But any organism must be considered in its entirety; no isolated element can thrive alone. Manhattan, new city and glittering with pride, will have to be rebuilt. And Americans, to-day, talk about rebuilding it.

Let us postulate that fundamental rule of modern town-planning:

(a) *The home depends upon the sun*: draw a diagram based on the sun and from that set out our multi-cellular blocks which, dependent upon the climate involved, will bear a strict relation to the sun's rays. The homes compose the multi-cellular block, and that as high as is expedient, facing the sun and indifferent to the lay of the ground; plain, hill, cliff.

(b) *The roads and paths have their own topography*: they follow a natural bent but that fact does not prevent some astonishing feats of ingenuity (such as arterial roads marked 100, 20, 50 or 150 yards from the Léman, already mentioned in these pages). They pursue their function which is to classify, canalise, collect, conduct towards some objective (the centre or the country). As they go, they shoot out useful branches towards the doors of the big blocks of homes. We need to dissociate the activities of daily

living and traffic circulation. One in the free air, turned towards the sun: the other on the ground, or near the ground, beset by topographical snares but always at the service of pedestrians by means of ordinary roads and pathways, and of motor traffic by means of speedways. No dogmatic finality.

Nevertheless, we must be decisive but infinitely malleable, according to a variety of circumstances, supple and malleable as all the laws of the spirit. This attitude of mind allows us, at the moment in Algiers, to establish a sound zone upon hitherto inaccessible sites which have been cleared in a masterly manner; furthermore, these have been chosen in admirable places, places where the sun, the sea and the mountains will come right into every home. Re-mustering of the city's potential; conquest of the Algerian heights.

At Buenos Aires we also can promise to the 'City without hope' a new radiance worthy of her unique situation on the Rio de la Plata, at the issue of great rivers, on the verge of the pampas and the waters. Algiers, an almost perpendicular cliff; Buenos Aires, limitless plain of water and grasses; Paris, river city, museum of French history, spacious park of the Ile-de-France, and at the same time a port, and the doorway of a stupendous traffic movement.

Theft and an Aggravation to the Circulation Problem

Neither Fish nor Fowl: the Garden City

A mistaken view of city-planning undertook, some fifty years ago, to ease congestion by the invention of Garden Cities (better known, in England, as Garden Suburbs).

Philanthropy took a hand, cheap rhapsodising, too. Contractors, philanthropists, poets, threw themselves into it to their hearts' content. They were sincere. They had no idea that behind them, feeding capital to this new enterprise of garden suburbs, were the cohorts of the conservative *status quo*, who thanked providence for this flowery solution of their problem: the menace of the *faubourgs*.⁹ In throwing out, as in America, whole populations into the vast expanses of the garden cities, far from real towns, collective forces were broken up, disrupted, became a powder of men dispersed to the four winds of heaven.

⁹ Working-class districts. (Tr.)

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A by no means disinterested press and childish propaganda were quick to revive the *Rousseauiste* illusion of liberty in the midst of the verdure of the big suburbs; health and happiness for the worker! The movement took on an irrepressible *élan*. From this highly equivocal foundation was born the *mystique* (legend) of the garden city.

Throughout the whole world: London, Berlin, New York, Chicago, Buenos Aires, Rio, at Paris, too, we see the development of this mushroom swarm.

But the very expansion of the phenomenon revealed its absurdity. The beneficiaries, taken farther and farther from their work, an ever-growing horde, packed like sardines (and by no means free of charge, we might add), began to lose some of their illusions.

Everyone sensed failure, and then economic uneasiness developed, harder to discern, but which I diagnosed, after a journey to the U.S.A., in 1939. This uneasiness proceeds from the Great Waste.¹⁰ Waste of money, first of all. The equipment and upkeep of roads and other means of transport; the installation and exploitation of the services of water, gas, electricity, telephone, take on enormously increased coefficients as the garden city extends its scope, offset by an insufficient return. Vast capital sums therefore become tied up in this type of enterprise. For the U.S.A., for instance, I estimated the loss (absolutely sterile) at 50 per cent of American labour. Mr Berlee, one of the late President Roosevelt's right-hand men, confirmed this. And this is how the thing worked out to me: four working hours a day completely lost, utterly meaningless; a form of slavery, introduced into society in this machine age through a fatal misconception and falsification of the contemporary urban problem.

In this way, mechanisation, in breaking up the old order, has evolved solutions which are worse than the evil itself. One cannot solve the problem of the new town-planning by evading it: by transporting it out into the country.

Neither does one heal the disturbance due to the speed of machines through turning away from the profoundly human aspects of that problem. The *four routes* may well express flights of human genius, by their technical and aesthetic ingenuity and by their ultra-rapid means of transport; they are nevertheless

¹⁰ *Quand les cathédrales étaient blanches*, Plon, 1936. *When the Cathedrals were White*, Routledge.

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subject to the laws of nature, and the main law is the law of the sun, and the sun revolves in twenty-four hours. The twenty-four hours of the sun's course are the measure of any town-planning enterprise. The garden cities, through the very principle of dispersal, have infringed this law and their inhabitants have experienced only disillusion.

It is bad town-planning—the proofs are there—to desert the city instead of replanning those which already exist or building anew on the basis of adequate modern plans. We are not disregarding the back-to-nature principle (call it that if you wish), in its broadest aspect, involved in garden cities. We actually propose to extend hospitable nature, by means of the *four routes*, into the city itself.

First of all, we propose to respect the solar day, to make it, if one might so say, control dizzy speed, to make it set a limit to our long daily journeys (destroyers of human energy) by train, motor-bus or underground, etc.: to journeys which cut so cruelly into our days. Terrible waste of the hours of life.

We are about to enter a new period of the machine age. After much groping, false starts, isolated experiments, will come the phase of harmonious realisation on a grand scale.

Modern technique has opened the door to salvation, through the creation of artificial plots.

This is the fruit of the new technique in the art of building, introduced in the nineteenth century, by the use of steel and reinforced concrete. One can see to-day the outcome of these new techniques, because they herald a new order of the rudiments of architecture: independent framework; free plans; independent façade, construction on props and piles, terraces at the top. From now on we should expect a totally new procedure. We must not underestimate this profound architectural revolution which has taken place under our eyes. It is that which will produce the means necessary for the planning of the modern city.

The problem can thus be stated in its most elementary form, in strict simplicity (not with the usual paradox), and can find a solution:

(1) A man standing upright on a flooring, isolated from the earth.

(2) He is in front of a window the shape and surface of which can evolve into a section of wall space, can become in fact one

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whole side of the room (independent façade); this window, this wall section of glass, will be set towards the sun as required (temperate or tropical region, etc.).

(3) In front of him is a vast reserve of space.

(4) At his feet are the foliage of trees and green swards.

(5) Over his head is a weatherproof ceiling.

(6) The door of the home opens on to a street. This is no garden city street but an *inside street*. This street may not even be on the ground: it could be *in the air*. The home need not be on the earth itself since we shall be reserving the total area of that for other purposes: this home could be situated at 15, at 30, at 60, or even at 120 feet above the ground.

(7) All these homes will be placed one next the other, along the inside street (see illustration, page 67).

(8) All these homes are placed one above the other in free space (which costs nothing), disposed in height, towards the heavens.

The scheme is finished. Artificial plots have been created; each home is a self-contained unit.

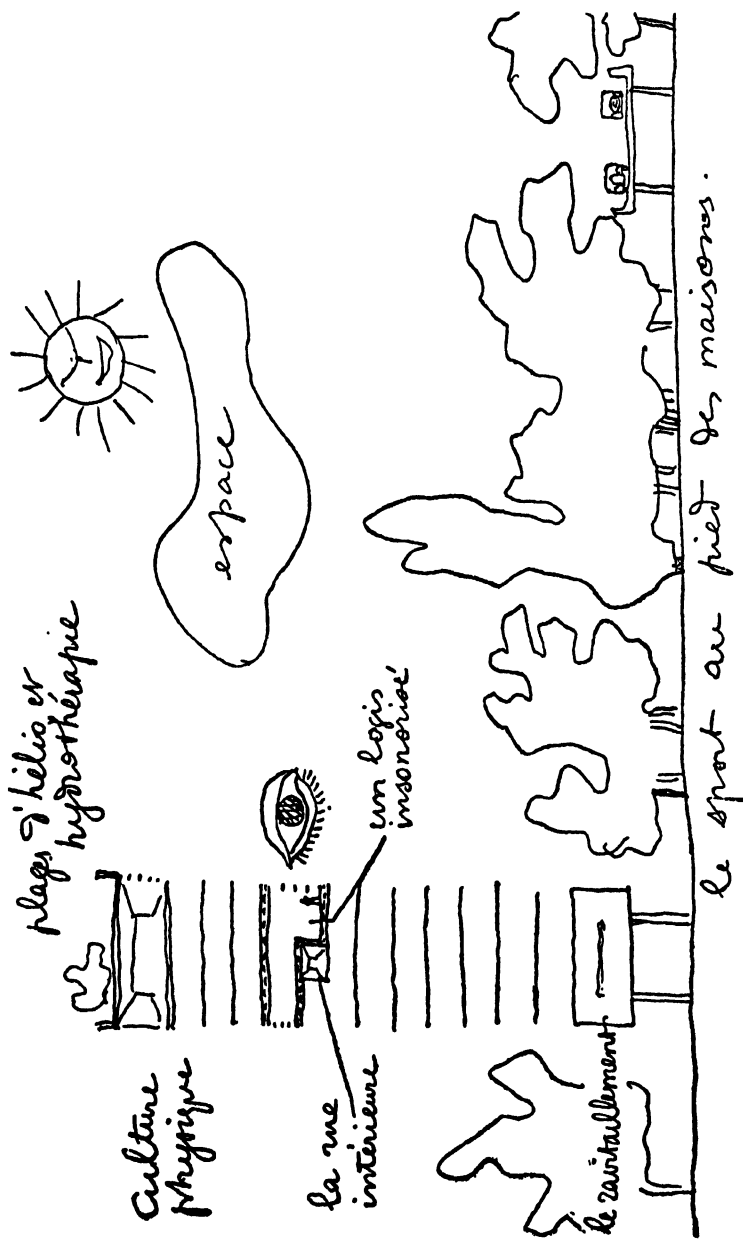
We need not tell professionals that a considerable saving has been achieved by these methods: one lateral wall has been economised in each home, also one entire ceiling.

Some of these advantages are of course already to be found in existing blocks of flats in our cities. But it is precisely the inadequacy of such blocks which has brought us to our present disaster (the *corridor street*). Those which we suggest are on a totally different scale. And the full and free life which is conceded to be our due to-day will result from them.

High building is one of the fruits of modern technique.

Let us now consider the benefits:

If homes are added one to the other on a vertical line, they by that fact restore so much of the ground area of their sites: consequence, added green space. What, then, is the expedient proportion between height and the free extension of ground thus gained? That is the problem. The relationship must be profitable, exact, productive. The data can differ as between cities, also according to the *goal set*. These goals or objectives can be envisaged from a basis of density (the number of inhabitants that



A man standing before a wall of glass (sun, space, green belt)

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an acre, for instance, can take having relation to a certain percentage of built-up area and a certain percentage of ground remaining free). Thus a natural order will be established.

Our conclusions bring us to:

(1) Power to dispose of free ground, large or small plots, at the foot of the houses.

What shall we do with this free ground; do we need it? It is here that taste steps in.

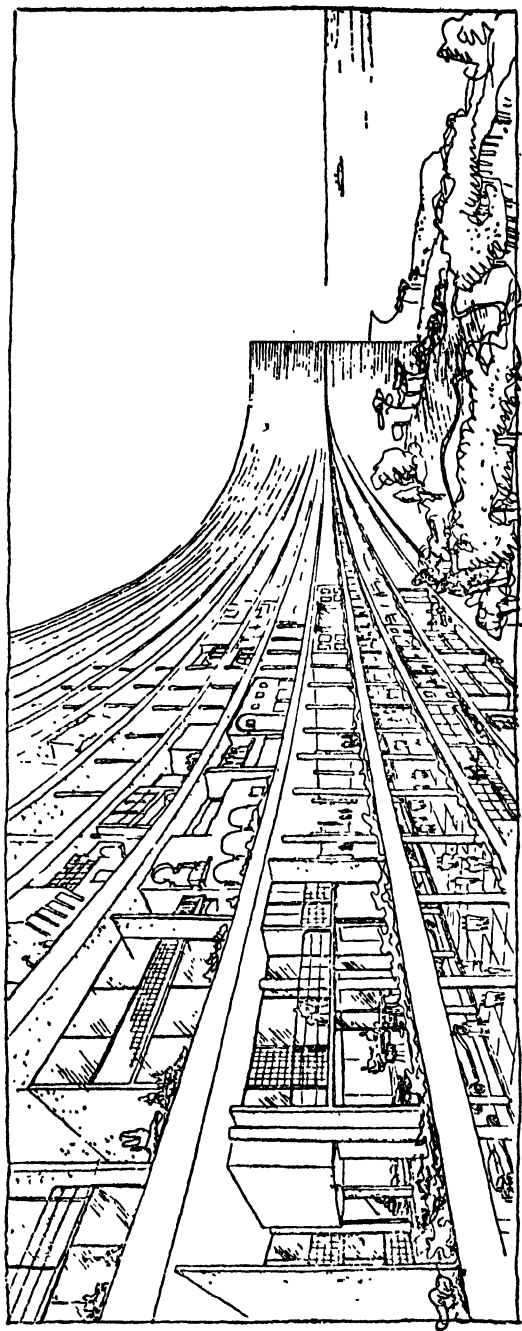
(2) We shall have a free choice to make our decisions, according to whether the final intention is to enlarge or reduce the area of the city; to increase or reduce the hours spent in travelling; to augment or reduce the cost of 'utilities' (public transport, roads, canals, etc.). It will only be necessary to relate the details of a general thesis which must be developed and adhered to: to *enlarge* or *reduce* the total area of the city.

We have pointed out another gain due to the recent revolution in architecture: outside this complete home, which from now is within our reach, *the total area of ground can be entirely freed by means of construction with an independent framework, of steel or reinforced concrete*. At best, the whole ground (100 per cent) can be made available and given over to divers necessities of which traffic circulation is one.^{10A}

The street at the door of the house is no longer necessary; into this 100 per cent free ground one can now introduce the second fundamental of planning: circulation. As we have already said, this will depend upon *topography* and *geography*, the phenomenon of circulation itself follows, or should follow, precise and inevitable rules, should develop completely independent of the lay-out of houses. The latter must obey the rule of the sun. On the free ground we can now develop those two systems which are necessary to modern transport: *the system for foot-passengers and the system for automobiles* (both light and heavy cars and lorries).

The automobile system, by means of a practical arrangement at different levels for high-power cars or heavy lorries, will follow a course the object of which will be *the shortest distance between points*. *The lay-out of this system will be perfectly independent of the line-up of houses or of their orientation*. Study of this system

^{10A} M. le Corbusier of course refers to his well-known method of setting up buildings on props, above ground level, with space to come and go beneath them. (Tr.)



Artificial Plots

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reveals that its network will widen out in a revolutionary manner as compared with systems tightly hemmed in by the methods of town-planning now in use. An amazing simplification then results. The simplification thus achieved entails infinitely lower initial costs and a virtually non-existent cost of upkeep (personnel and plant). This modern system based on different levels puts into effect one-way traffic without stops at crossings. It could be achieved by means of raised motor-ways, at a height of 15 feet from the ground.

Thus, automobile circulation, raised above the ground and strictly held within the limits of a short and efficient itinerary, *leaves the pedestrian master of the ground, insuring him against ever again having to enter into conflict with the dangerous speed of the automobile.*

We have complete liberty as to how we trace and decide the range of the automobile system and the area of the large blocks of homes established on 'artificial plots' (the depth of each home, its most efficient height, the disposition of the inner streets, the number of homes to be superimposed, etc). As we said before, this is a matter of efficient working out of details within the general scheme.

The Highway at Home: Country Planning

The railway made our towns into veritable magnetic poles: they filled up, became immoderately swollen, and the countryside was abandoned. Disaster. Through a readjustment of the highways, the automobile, happily, will help us to recapture the broken harmony and inaugurate a 'back to the land' movement which, paradoxical as it may seem, is the first consideration in town-planning. Whoever has been concerned with the present chaos of cities, is obliged to admit that one cannot satisfactorily plan the cities without also planning the countryside.

It was at the International Congress of Dresden in 1939 that I brought forward the basic question of a renaissance of peasant life.

And is that life then dead? might ask the ill-informed reader, who considers the grievances of peasants as so many jeremiads without importance, and who envies their fresh air, fresh eggs, good butter.

In actual fact, the countryside is at its last gasp, and already

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thousands of deserted villages or ruined farms are tolling the knell. But sound roots are still there, all that the country needs is to return to what it has been throughout the centuries.

Fundamentally, throughout the centuries the country has remained the same. When the hunter and the fisherman, lodging in the forest, were joined in the east by shepherds and those who wished to reclaim the land, when cultivation began, a peasantry was born.

It was to cultivate wheat that the first community centre developed. The hunter was an individualist. Two vital sentiments thus took root under our sky in the soul of the peasant: individualism; collectivity. And since then, nothing has changed since the earth (topographically) and the sky (as to climate) have remained exactly as they were.¹¹

But with the machine age arose an immense, voracious industrial monster which called for a revival of man-power.

A first stage of the machine age has flashed by, disorganising, making everything unnatural, breaking the traditional framework of the centuries. Its twilight bleeds with the suffering of men, is overshadowed by the spectre of war. Life has gone off the rails. It is urgent to regain harmony, working through this disorder of the machine age and utilising its prodigious discoveries. This entails a deep awareness, considered decisions and a choice.

‘Peasant life, so enfeebled (anaemic), which now only draws the weakened sap of a civilisation in decline, must be revived on a grand scale and allowed to bring back into this machine age the beneficent influence of nature: not only her tangible products but her profound influence upon the spirit of man.’¹²

‘Money, that sterile abstraction—the dead letter of savings or large fortunes—has ruined, in this case, as always, everything, including the hearts of men. Let us look at this disaster; the peasant, because he was rich or because he was ruined, caught between the influence of outside events over which he had no control, and the more general evils of an economic system out of gear, partly impelled by greed—abandoned the land for the city. Those who remained have allowed farm or village to fall into

¹¹ Gaston Roupnel: *Histoire de la Campagne Française* (Grasset).

¹² Report at the International Congress of Agriculture, Dresden, 1939.

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ruins. The peasant world has retired to the outside edge of life, a life which nevertheless is springing up to-day on all sides, eager, passionate, aspiring; a proper contemporary manifestation of life, a kind of cosmic mutation.

‘There is no need to despair, very much the contrary. What is essential is *a new point of view*, that a new leaven should be introduced into the disillusioned heart of man. The new machine age (second period) can only be built upon a living countryside because, as we have said before, we can only reshape our towns by improving the country. The peasant home must be remoulded—the family farm and its natural outcome, the co-operative village, these two bringing us again to that alternate equilibrium: individualism, collectivity. Natural foundations.

‘The means are there. We are not talking about money! but about the potentiality of mechanical production. There is no programme too vast, too utopian. Everything is possible. Gigantic programmes are precisely what is needed for machine production. The industrial world will equip dwellers on the land, the land in turn will feed the industrial millions with bread, milk, fruits and meat. We must look at the long-range objective: the products of industry designed for the world of the peasant: mechanical equipment, domestic equipment (the farm itself, contained and containing), the collective equipment (co-operative village). It is a matter, here, of standardised elements produced in series, precisely adapted to exact needs, and capable of adjustment in a wide variety of circumstances. The workshops of the industrial regions will furnish the peasant with modern implements. And the heart and mind of the peasant will beat and operate in tune with the heart and spirit of the workers who have become absorbed by industry.

‘The farm will be a family centre, the village will be co-operative. This will apply to the major part of the western lands composed of valleys and small hills. Topography and geography control a complex mapping of water systems, of insolation and winds, the effect of which suggests or imposes a large variety of culture, of uses of the earth: ground under cultivation, pasture lands, long-established forests. The peasant’s day is varied, many-sided; his calendar involves considerable initiative. We are far from mono-

cultivation. So many difficulties to be overcome, so many resources to be exploited, make the mind agile and draw the man and the earth together in a remarkable way, develop initiative. Man is attached to the ground which he has conquered. The farm, surrounded by its fertile acres, is no impersonal implement, as for instance the machine in a factory; it is a natural centre where the family economy takes shape, a moral atmosphere surrounding the peasant soul. In the same way, the peasant's civic centre, the co-operative village, becomes the meeting-place for the rural commune, a centre of contact with the heart-beats of the nation and the world.

'The co-operative village, taken as a whole, is profoundly realistic; but while supplying all the economic and administrative requirements of the peasant commune, it also aims to animate the spirit. And to that characteristic we ascribe its final, positive importance. The rural "club" is a temple where all, young and old, will find the means to a wider outlook, to a participation in the life of their own times, elevation of thought. Their latent creative powers will awaken, and in this way will supply not only the material products of their labour but add something to the common store in the realm of ideas. That is the new point of view which, from now on, will produce a new angle, new reasons for daily living. This is properly speaking the lever of happiness, the interest of life which is no longer a money interest: this is the point of view of the second stage of the machine age.

'Let us describe it:

'The co-operative village is a rational constructive scheme composed of buildings which have a specific purpose, arranged in their natural order and fed by a regular circulation. It contains exactly those elements which are absent from the family farm. Let us make clear that there is no question of replacing our antiques, but rather of a completely new type of installation.

'It is laid out on a well chosen ground: solar orientation, winds, beauty of site, convenient situation in the middle of the rural commune, useful connections with regional roads and with the main route of communication which links it with the capital town of the district, and beyond that, with the capital of the province and with that of the nation.

'The village is to the left or right of this road, some little way off, completely independent, never set along the sides of it:

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a main road should not be bordered by houses. Access to the village is achieved by means of two loops which have been set at different levels, this leaves intact the requirements of the main road.

'The elements of this village will appear in their natural sequence:

'The silo for grain, for fruit and vegetables, is the very foundation of the new rural economy. The silo represents the freedom of the market, freedom in handling; one can wait for the propitious moment.

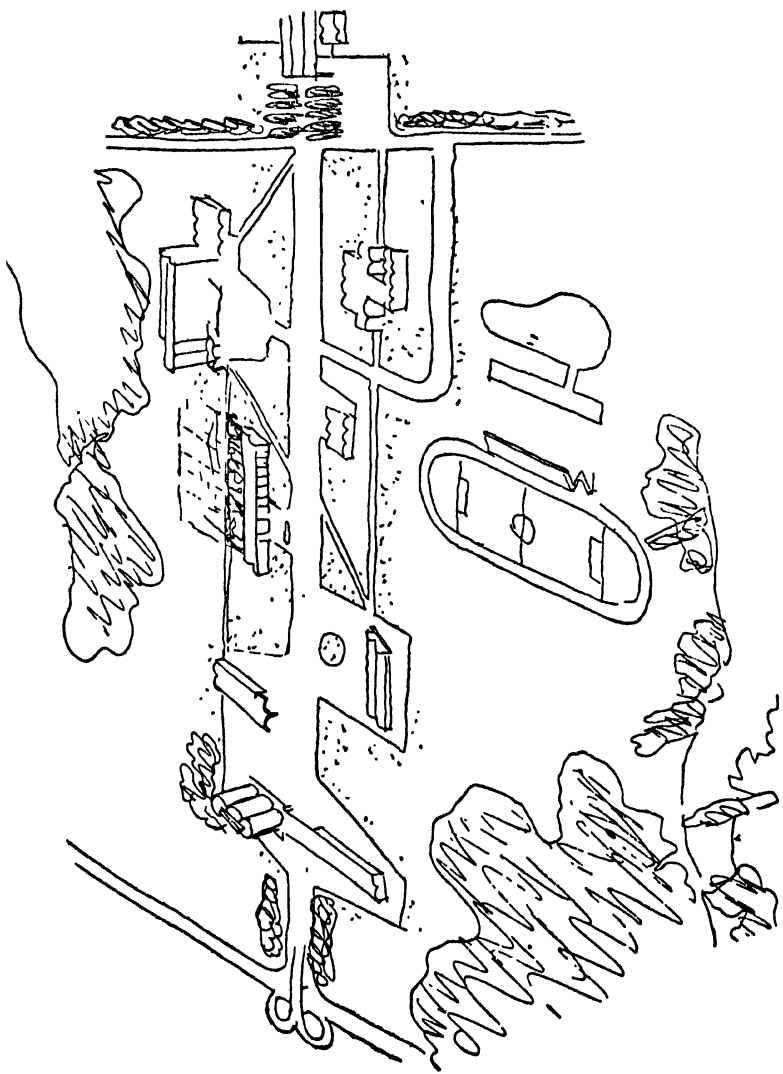
'Nearby, the workshop for mechanical repairs; the farriery and hangar for communal machines; the petrol pumps, this distributor, be it noted, is not placed at the crossing of the high road. No, it is one of the functions of the village and certainly not of the road. In the same way, the mechanic will not be dealing with the travellers of the main road. The main road has its own services.

'One passes on to the co-operative shopping centre: stores and retail counters. The whole life of the peasant will find new resources here: varied and fresh foods (fish, butcher's meat, ham and beef shop, grocer, baker, confectioner); domestic requirements: ironmongery, haberdashery, hosiery, ready-made clothing, boots and shoes; food for the spirit: newspapers, magazines, books, gramophone records, photography. The lorries coming from the district will park at the wharf of the depot; the smaller lorries and wagons of the peasants will line up near the retail counters.

'Then we come to the school with its classrooms and their range of light projectors, fixed or mobile, its handicraft studios, its playgrounds covered or in the open air, its study garden.

'Opposite, the Post Office.

'And now the block of dwellings which enjoys all the amenities of communal organisation: heating, the communal care of children, garage. All these have been designed for the people of the co-operative village: the men who work in the silo, the mechanic and the farrier, the butcher, the grocer, the haberdasher, the shoemaker, the hairdresser, etc., the schoolmaster and schoolmistress, the Post Office employee, the town clerk. One floor is reserved for occasional agricultural workers. Each home (following the same principle proposed in the case of towns) is, in a way,



Co-operative Village

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a maisonette with a ground floor and one other. These maisonettes have been grouped and superimposed to the number of from 30 to 40 in one building.

'Here we have a new conception of village life: the large block of "dwellings" enjoying communal services. Thus each household is assured a maximum of ease, comfort and real freedom from domestic cares. It is the country-dwellers themselves (the Bézard Group, in the Sarthe) who are demanding, for themselves, advantages which have been acquired by, or at least proved to be accessible to, dwellers in large cities.

'At the far end of the village, at the very axis, the town hall, the basic and traditional mouthpiece of the rural commune.

'Finally, the club, that new institution which could bring about a great reform "of the spirit" in the life of the peasant.

'The club is a complex institution. It has within it the means to awaken an attitude to life, an attitude which will tend to raise the whole peasant mentality, to bring it into tune with that awakened conscience which has already appeared among the workers of our great cities. It contains an assembly hall attached to a bar, to a little museum of folklore, to a library. On the other side, a large assembly chamber. What is this chamber? A centre with many objects; a place for professional debate, economic or political; lecture hall; cinema; young people's theatre—a theatre in which the actors, and even sometimes the authors, will be the youth of the village using its leisure in a creative direction, bringing to life the peasant soul with its own very special resources and sensibility. The end in view is to open out the spirit and the heart of youth: to give youth an opportunity: to awaken freer consciousness, to create, to feel the beauties written not only on the face of nature but in the spirit of man, to discover things about life, to participate in the birth of a new civilisation, to become active and no longer inert and disillusioned; to have faith and the love of one's fellow man. The renaissance of modern society must gush forth from every atom. Country life, which has already established world contacts by means of the radio, newspapers, magazines, books, has come out of its long silence. Now we must develop for it the faculties of speech.

'The assembly chamber also allows for a studio for stage sets, laboratory for photography and cinema, small committee rooms (or offices).

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‘Mothers, coming in from the farms, will find a guardian for the children and an appropriate annexe to the bar.

‘The club possesses sports equipment: football, racing, etc., and swimming-bath.

‘This is a short description of the village, new instrument in the hands of rural society.

‘Such a place, brilliantly equipped, rigorously rational as to each one of its elements, will reform life on the land: economic security is implicit in economy of movement and procedure; joy in sharing that immense mutation which, little by little, is transforming modern society.

‘But this centre of the rural commune will only have value in so far as the family life of the peasant has also been organised in such a manner as to bring it into unison with the present age. That family life will develop inside the farm which is set in the midst of its arable lands and its pastures. In many of our provinces these farms, legacy of the centuries riddled by saltpetre, built upon a foundation of beaten earth or brick lining, have no longer any real value. Many are tumbling down: it would be madness to revive their ruins or to start building them again in the same way. New farms will glow like enamel on the countryside, dotted here and there like fresh flowers. The new farm inside its orchard will be as beautiful and as useful as the co-operative village in the centre of the commune. And the metallurgical worker will build the farm, the man over there, in the regions of heavy industry. Made of steel and of standardised parts very carefully worked out, it will become one of the essential occupations of industry when the manufacture of cannons ceases. Designed for the needs of the region concerned and its climate, these prefabricated farms will arrive in lorries and be put together by the assemblers, just as assemblers now go all over the country to set up technical equipment.

‘*Technics*. The farm is an exact working implement. If the concept is right, the farm will be correct and efficient. Some peasants, in view of their needs, asked us to study the family farm. Gratefully, they christened it the “radiant farm”, fitting pendant, as they saw it, to the “radiant city”, the name given to that new urban scheme which we drew up for the salvation of the city populations.

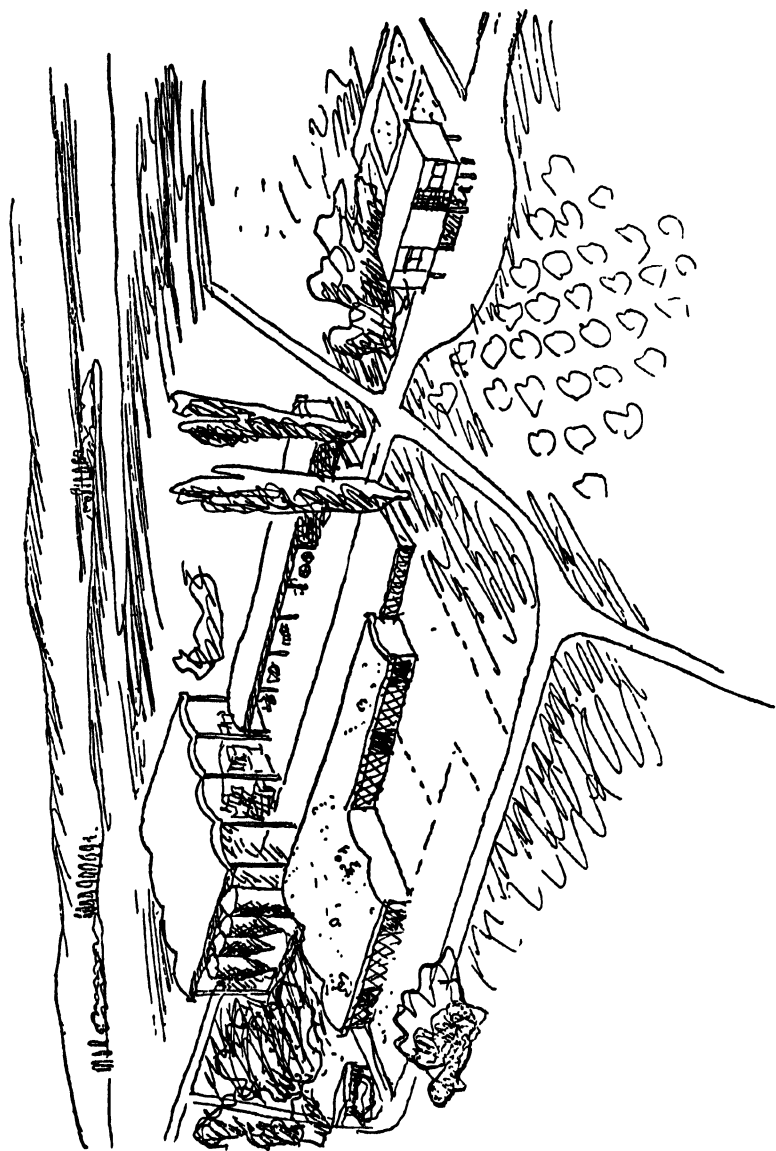
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'A farm is in fact an arrangement of buildings designed to house a definite stock of implements and equipment, live-stock, and stocks of food and straw. Its first care is to house the peasant family. Before anything else! It is well to establish that priority. The first stage of the machine era had turned this upside down. The machines were the "individuals", the "souls" of that period, men were but the workers, an impersonal collective mass, without special qualities. More than that, machines were lovingly installed in temples and men were then obliged to fit themselves into any old place which happened to remain over in the financiers' plans. From this arose the misery of the age. In the country, the deterioration of human beings was just as heartrending as in towns, due to the ferocity of money.

'The home of the peasant will be the heart of the farm. This spot must be considered with that high seriousness, that full sense of responsibility which its purpose demands. The peasant soul will shelter there. There will be the cradle of that soul's awakening.

'There is one main essential which lies at the very centre of the programme: the peasant's feeling that he wants to live like others, in a state of well-being, light, cleanliness, the decencies of a domestic framework able to ensure happiness. The joy of living! The joy of living, for reasons which have their root in material causes, reacts on the feelings; creates a feeling of pride, of mastery within the right framework (light, space and cleanliness). Clean water, electricity, a stock of agricultural implements will henceforth dispose of all obstruction, of all demoralising limitations.

'In the "radiant farm" the home section is independent of stables, cattle-sheds, pigsties, hangars and barns; it is situated at the axis of these general services, a post of command. Water and all sanitary arrangements are ample, as also the light of day and electric light; the disposition of the home is such that father and mother, boys and girls have each his or her own room; there are douches and large washing-basins; the traditional living-room is reinstated in its proper dimensions, but equipped in the modern manner. The kitchen is a friendly laboratory. All this is the result of standardised parts, applied to a metal framework easily mounted. The *standards* which govern the detailed elements of the scheme allow for a variety of combinations both as to size and place. Thus we can satisfy the requirements of long-established custom which are, after all, worthy of respect. The home is the



The Radiant Farm

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headquarters of a restful family life, its cheerful setting. The dunghill, the traditional farmyard gutters, cattle with their complement of flies, are no longer under the window. Filth is no longer considered the crowning gem of peasant life. Writers about country life will have to revise their stock of clichés. And we know, from direct observation, that the peasant is not to be confused with the hero of bucolic poems, but is energetically attached to his new equipment, which, each year, is becoming more ingenious, replacing manual labour and gaining precious time; these implements ensure supplies inside the "radiant farms".

'The scheme for the individual farm is as exact as that of any manufactured object or of any element of industrial administration: placing, contiguity, circulation are clearly specified. One can compose the plan. One can so well compose it that a clear-cut biology arises from it, regulating everything within a closely defined economy of gesture and money, putting all things in their place. The farm can become an organism which typifies the good life, a new and luminous life: a blessing to the mind and the eye, an object of pride to him who runs it.

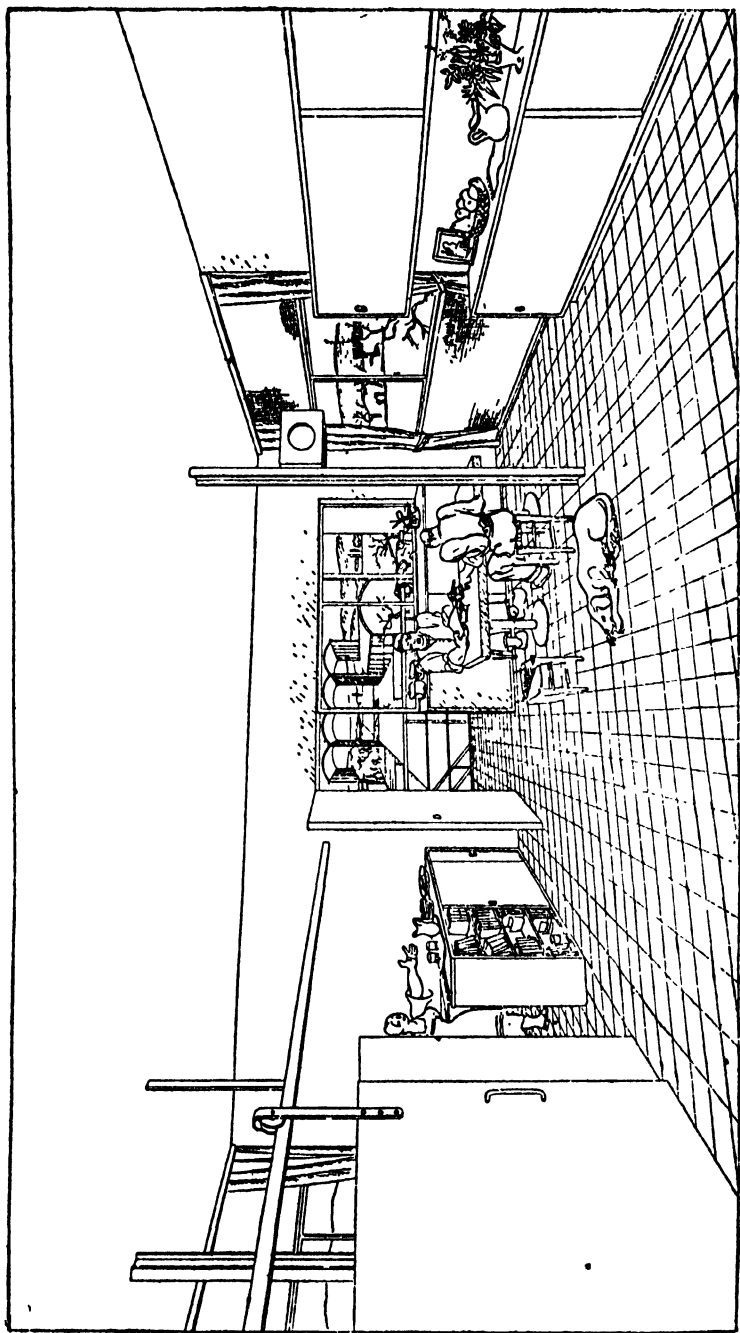
'Within the landscape the new farm rises up with all the elegance of good breeding, a well-proportioned architectural "event" revealing in the midst of orchards, of cornfields, or of pasture lands, the new spirit of an epoch which has started to live again.

'And the peasant family, inside their clear-cut home, manipulating objects ranged with efficiency and in order, has left disillusion behind. The family now believes in life and, once the necessary money earned, they employ their time rather in the upkeep of this precious new life than in any attempt to swell their bank balance.

'And two minutes away, five minutes or a quarter of an hour, is the co-operative village to which the family will go by lorry or by cycle. Jobs finished, the club is there, where the peasants meet, where Youth can pick up the means of creating products of the mind. The hard but admirable life of the field finds its recompense here.

'In short, life has come back, and if that is true it is not necessary to say any more.

'In the meantime, the old village, huddled round its church, remains; venerable scene to which attaches so much that is pro-



Interior of Model Farmhouse

THE FOUR ROUTES

found in human life. Shorn of all useless elements, is it not the natural asylum of human beings whose career is drawing to a close, of those from whom life has withdrawn, one by one, their natural props? In the old village, peace reigns, hard by the last resting-place.

‘So let us begin to reconstruct the modern countryside: there need be no break with tradition.’

PARIS, 28th April 1939

IV THE RAILROADS

THE railroad, now more than a hundred years old, is adult, its achievement ripened, its system firmly seated. Technical advances will increase its utility, will improve security and speed. One should not forget that it evolved a civilisation of its own, the first period of the machine age. Now the new highroad has outclassed the railroad, which must take a back seat and will no longer control the destiny of the countryside or cities: but it has been responsible for much of the horror and filth of our towns and villages; it must make amends.

Its beginning provoked little less than frenzy. Nobody knew exactly where we were going but it was generally agreed that we should go far. Rails were thrown out in all directions, the earth's circumference was plaited with rails.

Enthusiasm showed itself in two different ways: productive and greedy. To reunite men, regroup them, weld their destinies over distances hitherto unknown, and give a wider scope to the day or the year; to break up the speed cadence of the centuries and suddenly enlarge the field of action, was a grandiose vision. Alas, enthusiasm flowed also into commercial channels and an enormous business resulted. Not poetry but greed dictated the event. The world's railroads were built on the basis of speculation not only economic but political. We, in France, carry a permanent deficit of 15,000 kilometres of railroad which have been little more than 'electoral sops'.

Stations were established at the centres of cities, presumptuous palaces for that dubious royalty which emerged from the rail; they had clapped on to them hotels and buffets of equally questionable taste. The iron way was thrown out relentlessly, with a savage disregard of the rights of man. Innumerable hangars and workshops quickly surrounded the soulless quarters of a city, inhuman quarters, parasites of the railway, melancholy refuge of tramps, island refuge also of provincials lost in the squalor.

THE FOUR ROUTES

Furthermore, it bore the imprint of pollution: everything was smirched with a black leprosy of soot.

The first sign of a rebirth has appeared: a new kind of coal will protect us from dirt. This simple technical transformation will revolutionise the relations of the city to the rail. That landscape of purgatory will be wiped out. Black hands, black faces, black façades of houses, black coaches, black luggage, black pavements, stench mixed with sulphur, all these will be but a memory. Our children will know once again the sootless cities of our ancestors.

We are beginning to free the towns from the control of the railway system. At Antwerp, for instance, the town had been caged, cut through, surrounded by rails. I was able to propose a real liberation by organising, simplifying and suppressing supposed insurmountable barriers. Sticking up between quarters, they had destroyed the city's unity and devitalised it.

Everywhere in towns and on the edge of villages where the railroad passes, we must start to replace the architecture and landscape because when the permanent way is equipped with its new type of train (old steam trains discarded), cleanliness and grace will return. The iron way, clumsy *par excellence*, will take on a new aspect. Already, violet iris by the thousand have been planted on its banks at Paris, and the railway has gone into half-mourning while waiting for the start of a new life.

Let us try to analyse the biology of the rail.

In spite of stations, it is essentially a double line of steel running between meadows, fields and forests. But this vast tangle of rigid viscera which spreads over the face of nature, swells up suddenly on the outskirts of towns, taking the shape of a spindle, filled with shunting and secondary lines, trains held up or awaiting their couplings, goods sheds, engine depots, workshops for repairs. Up till now, these objects have been installed and built just for use and were put down hugger-mugger as the need arose. And entrance to the city which used to be the occasion of pomp and brilliance, via the drawbridge and the city gates (Porte Saint-Denis, Porte Saint-Martin alone remain), has fallen into ill repute. And the thousand-year-old roadway into the heart of *la cité*, where we find cathedrals and the *hôtels-de-ville*, is to-day dishonoured by that leprosy which spreads round the clanging of trains on the switches. Total disintegration, loss of prestige, abortive arrival, melancholy method of alighting at the end of the road.

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But once electricity has been installed all will be changed and the landscape will be transformed. It is right that the railroad should atone for its offences and this atonement is important because it concerns our *introduction to the city*. Electricity tearing away the mantle of soot, the rails in future will carry their tracery of polished steel over carpets of grass and lawn, right up to the station platform. The sheds will be fresh-painted or rebuilt in the clear-cut style of steel and concrete. Trees will be planted and the trains will run through green fields. And why shouldn't we plant flowers, as in the Luxembourg or Tuileries Gardens? Already, along the route, a few station-masters (a few men of feeling) have shown us an example in the naive wayside gardens on the lines to Normandy, to Belgium or the Riviera.

And so one's arrival at Paris in the future might be very different; great hoardings now announce: *Paris 10 kms*. Is one coming into hell? But no, our train is rolling towards the Queen of Cities. All will be charming, clean, of good intent. Look at the planner's suggestions for our new urbanisation: fixed points mark the stations. Here opens up an immense green estuary in which the built-up areas are suitably disposed, utilities concealed behind the foliage which flows quite naturally into the countryside. Here nature will come to her own again, to us who had forgotten and elbowed her out.

We shall clarify the purpose of the iron way; divest it of all that parasitic growth by which its essential function has been strangled; the highways must sometimes take over. The highway, infinitely dispersed, is not designed for long-distance speed; it 'irrigates' the countryside; distributes the living sap in the thinnest of trickles, and actually is still too slow, in spite of the motor-meteors, unable to keep in step with a modern time-table. The iron way, on the other hand, leaps over distance with a bland and steady speed. And nothing deters it: the darkness, the fog, the rain; excessive heat or cold; the guard's indigestion! Rigorously efficient, on a protected route it may run with closed eyes. It is cut out for the crossing of frontiers, to pierce the Continent's remotest points. And having punctually finished its course, the railway can to-day be integrated with the waterways (calendars and time sheets!) to say nothing of the air-lines.

But everything is still to be done, if we want not only tolerable trains, but trains that will make a pleasure of long days spent on

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the railroad. To travel two days and three nights in an ordinary train is torture. On the *four routes*, so far, ships alone can offer a comfortable lodging. Long journeys demand an opportunity to stretch our legs, to change the position of the body, to distract the mind. Travel in trains, to-day, is gloomy.

So in spite of being adult, the railway is by no means up to date. One striking example of this is the height of platforms in France. In England, in the U.S.A., the platforms run level with the trains; one jumps in or out easily, with or without luggage. But in France, you get in or out of a train at your peril, especially if you should happen to have a heavy suitcase in each hand!

The Frenchman is a bad traveller. The comparative smallness of his country precludes any too unbearable trial of patience, and good temper oils the wheels. But we must concede at least this to the French lines: we travel more quickly than anywhere else. And that is no negligible quality since a train is meant to go fast; to the traveller, great speed gives intense pleasure, a sense of well-being, a feeling of satisfaction.

America, with her wide spaces, has been equipped in the modern manner; she has designers for her carriages—even more than that, for her trains. During the run, the traveller ought to be able to walk about, go from place to place, sit in different positions, find occupation or distraction. The train should be a street punctuated by squares. Why not put the station library into the train, the cinema, the café terrace and the bar, even the *bal musette*, the ship's deck, the clubman's smoking-room? We find a germ of all this here and there: crossing the savannah, the pampas, the virgin forest. There the last carriage is arranged as an open balcony.

Let's turn our *interior architects* loose in the trains, let's put those stuffy administrators of the railways in contact with their own times. We must let in a little fresh air, implement the just claims of the passengers. Raoul Dautry, in France, shook up the railways. His energy and initiative have already borne fruit—but there is still much to be done.

The railway problem was bound to remain confused as long as the iron way was mainly confined to the lowly and unsatisfactory job of transporting goods and passengers into every hole and corner. But to-day we begin to see the light: the highroad has got

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back into its stride and lorry and car have eased the rail of a burden which was sucking its life-blood.

From now on, the rail will be used for long distances only, the uninterrupted run.

But the upkeep of the permanent way, and of all equipment, the maintenance of an alert personnel, will require a substantial clientele to offset them. Much of this we can get from holiday crowds: winter and water sports have suddenly assigned to the rail a special function: to carry to the mountains, the lakes, the sea. Little by little, this function is clarified: night will afford the proper moment for the task. A new kind of faun, at a given moment, will throw himself into the hunt. The skiers, equipped like snow warriors, the swimmer who to-day still hesitates between being a figure on the smart sun beaches or being a fish. They are coming to life, these chalet or cabin trains. Between the time of leaving home and reaching their sports ground, these people will have dropped their stereotyped personality. No need to fit up carriages with soft cushions and a drawing-room elegance. They call each other by their Christian names. They congregate in one singing and gesticulating group. They come together in clubs and they would like to gather round the feet of a good story-teller. A new sense of brotherhood is developing from such new-found pleasures. They have heavy, awkward shoes like working mechanics, cumbersome equipment, sacks full of kitchen utensils and food.

I remember a woodman's hut which had been brought to Skansen, Stockholm—that Botanical Garden of popular Swedish architecture and folklore. People were grouped round the fire at the centre of a cone of logs and branches. Huddled over the fire, they spent long hours chatting in the circle. This picture brings me back to the equipment of that week-end, which will be thrown out into the night, towards the Alps. The problem of our sportsmen's sleeping-quarters comes nearer to the loft of new-mown hay than to the boudoir. In short, it's an outdoor problem with which modern technique can cope. In the U.S.A., the trains are already air-conditioned!

And this is how we shall state the problem: a railway carriage is a 60-foot house; and the train is a village.

V WATERWAYS

WHEN we were children, we played at trains and dreamt of boats and of the high seas. And boys, to-day, in spite of their fondness for the mechanics of a car, also dream of becoming airmen or sailors: a sign of their violent desire for action or adventure; of their thirst for the unknown, for some potential which the mediocre realities of daily life will nibble away in course of time.

That eternal poetic dream of ships on the oceans! Why does it always move us? The whole sky above is reflected in the water. Pearly and azure shell. Feeling of space and the fluidity of matter. Children in the Paris streets, or in courtyards with perpendicular walls, don't see the sky; for our eyes look out from the front of our heads and not from the top. One can well understand the lack of charm in cities. In New York, you don't see the sky, either, unless you look for it. To have space and the course of the sun in front of us, and not behind: that is the basis of Town-planning. To walk straight ahead, into the open spaces: that's how the ships glide.

The waterways are as old as the highways; together they serve the towns. And then there are the ports, those water towns, centres which a thousand years of planning had prepared for our ships.

There is beauty in ports through the movement of ships. The cry of the siren announces the coming and going of men who are sailing afar in search of adventure; of men returning home with a load of remembrance.

The hull of these ships is well built: fruit of a sound hypothesis rooted in exactitude: water or air resistance; capacity of screw-propeller. A law is implicit in the working-plan for a hull, and if the harmony of that law were to fail, the ship would come to a standstill. As with the stance of the oak or the rose bush, the gazelle or the bull: there is a universal law of harmony.

That is why battleships strike so deep a chord, and certain well-shaped cargo boats, because a single guiding idea, the whole of a simple propulsion, lies embedded in their flank. I know that such minor aesthetic pleasures are only those of a passing fashion. I know that in time they will date and no longer appeal. What matter if to-day we are proud of them? It will ever be thus with objects of utility whose essential quality depends upon the current state of techniques which are always on the move. What matter, we live in great times!

But the interiors of the large liners are far from evoking the same sensations of golden harmony. A chaotic aesthetic is apparent; here it is the landmen who have ordered and designed. We have lost all that feeling which produced the streamline of the hull; that precision which we associate with the paraphernalia of navigation. Everything is too rich and of doubtful taste. Nothing has that fascinating purity of line which would accord so well with the changeless horizon, with the elements, with our consciousness of floating in some sacred ark between two continents. Instead of this, you pay dearly for a room delivered by the *Galleries Lafayette*. All dignity, grandeur, charm, have fled; imagination toppled; poetry died.

And yet the field was free; wide open to people of imagination.

The ports are filled with ships. The piers are covered with barrels, with bales, with wooden cases. Arms appear as if by magic, powerful as titans; gargantuan jaws seize all that is on the ground or in the hold; iron serpents glide along the dock-sides. What a lovely zoological garden: filled with prehistoric beasts. A clamour, steam-whistles, the cries of men, the song of sirens. All is efficiency here.

But, alas, there is disorder also, greater than one might imagine. Money, again, has been at the helm; money, always in a hurry, has created rival enterprises. Nothing has been designed for enjoyment, nothing is free. Scarcely any sweeping is done, and with so much water at hand, no cleaning. Gears are oiled, but nothing is painted, and this although the boats (in their case a vital necessity) are freshly adorned, continually rejuvenated, brilliant in colour. The sheds look dreary. Saddened, one feels that these sheds, swollen with produce, are the females of the male boats, and one could wish to see some slight indication of an equal status in the family!

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The lay-out of the ports is by no means always satisfactory; bits have been added, no general plan was foreseen. The town sprang suddenly into being and the sailing ships came and anchored in their clean and charming quarters. They were lodged in stone, these wooden boats with their ropes and their canvas. Then came steam, and with it came wheels and screws and soot, cement and the cessation of loving care. The scramble for quick dividends, the battle of the land engineers with those of the sea; misunderstanding or indifference have here as everywhere destroyed all harmony.

How beautiful the great ports are, and how ugly: London or New York, Antwerp or Buenos Aires. And yet here and there some sublime landscape crowns majestically all the assembled disorder—Marseille, Rio, Barcelona . . . And nevertheless, in spite of all that, the ports in their squalor move me, their every detail stirs in me a hope. I am also moved, and deeply, by the slums of Chicago, New York, London, and by the alleys of the Marais quarter of Paris. Splendour of ugliness and squalor which remind one by their very dissonance that life is beautiful, since life itself is available to those who are willing to accept it: life with its flowers, its fruits and its catastrophes.

I once lived for a short time in a marvellous dream. Like Icarus, it fell to earth because its wings had been soldered with silver, not inflated with that enthusiasm which vitalises. In North Africa, in Algiers, near the frontier of Spanish Morocco, things began to move: from Fez a railway line was thrown out towards the Mediterranean, designed to replace the old circuitous route by Casablanca. The last subversive elements of the Atlas and the Riff were coming under control and it was expected that the high-ways of Morocco and the southern territories would soon be freed. Projects were under discussion to establish contact with equatorial Africa, to push as far as the Cape itself, and to cover the whole of that romantic continent with a kind of iron meridian.

Excavations for the port of Nemours (historic little town, scene of the conquest of 1831) were in operation: two streets ran parallel cut from a square, typical of the military operations of the last century, well built, wide and straight as the African soldiers knew how to make them. A great port was to be made because great events were coming to a head in this region. The Mayor threw out some feelers.

Yes, indeed, why should we not make the most of this essentially modern creation: a brand-new port, a railway and new highways going from Oran to Fez, to Tlemcen and to the South; Why not take this opportunity and found the modern city of Nemours? That is how we came to be asked to draw up a plan for Nemours. Published, and widely discussed, that plan was considered by the C.I.A.M. to be a perfect expression of the Charter of Athens.

The plans were finished, and demanded by the municipal officials.

The diagrams allowed for the upkeep of 50,000 inhabitants, and they outlined:

- The industrial section of the city,
- The outbuildings of the Port,
- The building designed as a business centre,
- Residential neighbourhood,
- Administrative centre,
- Tourist and Hotel centre.

And these plans, having been posted and having duly arrived on the table of the Municipal Council, these plans, in which were embedded the rich potentiality of a township of 50,000 inhabitants, melted away into thin air, and all because somebody gave away the secret. Once the plans were revealed, their possible utility had gone.

And why? Because the residential quarter was to be set up on an amphitheatre admirably situated—exposed to the sun, wind-swept, with a view—on a place which in its present state is little more than a stretch of sand and pebbles, where not even a sheep could pasture. And this plot, which would be good for ten thousand homes, is scarcely worth a bean; one could buy it with a fistful of gold.

And the industrial city is on a spot where the Mayor now allows construction of huts and tiny houses which are being got ready against the arrival of future man-power: of Spaniards who will come off the ship with a handkerchief hung on the end of a stick containing the sum total of their worldly goods.

And the business centre is on a ground-plot which is now empty, beside the port, in front of the station-to-be.

Where are the administrative and the hotel centres? They are placed on an upland which forms a promontory at an angle of

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fifty degrees, from which there is a superb view and where one gets the best air.

And all, up to that moment, had been only an African desert, where beautiful gardens might be planted; desert ground of no value . . . *until the plan left our studio*. But in that plan lay a new Klondyke, that terrible question of money of which I am so often obliged to speak, *and which urbanisation can produce*.

In a rush, I saw the business sharks in Paris, the large societies for colonisation, get on the job. An option of 200,000 francs was enough to reserve the total ground area involved; a mere million francs sufficed to buy it. Nobody came forward to do what ought to have been done.

The plans went back to Nemours. They were ratified by the Municipal Council. Now, of course, it was known where the most desirable ground-plots were; we had discovered these, and drawn the attention of the aediles!

A lawyer got busy selling plots for the construction of an ordinary housing estate, of tiny houses. . . .¹³

Whose was the fault?

The State had given a concession to the future Port of Nemours; the Military, on their side, wished to reserve a base. The State had also conceded the railway coming from Fez. The State was informed as to all those fine projects which were to converge in central Africa. The State had given mining concessions; the State was studying air bases, both military and commercial. The Municipal Council estimated that a city of some 50,000 inhabitants would develop around these various sources of riches and work. And those 50,000 inhabitants, would they come, to offer the work of their hands, one by one, with a handkerchief on the end of a stick? Yes, that is just what would happen.

That's how they will come, because that's the usual way. Which goes to prove that a proper town-planning does not yet exist—the *new science of the administration of cities*. It neither exists within the machinery of State nor within the provisions of the *Code*. For a long time now, after so many abortive experiences, in order to lay an axe at the root of the discussion, we have

¹³ M. le Corbusier's plan had, of course, called for the erection of enormous multi-cellular blocks able to house each 2,500 people, in the residential sector. (Tr.)

said: Town-planning is no longer a matter for municipalities; it is a matter for the State.

The multi-cellular apartment blocks of the new city of Nemours, standing in parks and facing the sea, could each have housed 2,500 people. They could even have been built in quarters, that is to lodge 625 people each; which represents anything from 150 to 300 homes. And now, as things are, how shall we stand? When the new city of Nemours, in Africa, is opened, will it be possible at somebody's instigation, by somebody's orders—the controller, the State—to engage at one go about 200 salaried workers, consisting of dockers, marine engineers, mining engineers, railway engineers, administrators for all these divergent interests, officers and non-commissioned officers of the garrison, commercial employees, railway employees, station-master, school-teachers (men and women), restaurant keepers, grocers, butchers, cinema concessionaires? Will our bureaucrats be able to engage qualified personnel; to ensure that that personnel arrives quickly armed with contracts, luggage and equipment; will they be able to provide, in African territory, homes for the wives and children of this personnel: in a word, will they be able to put into operation a complete and proper recruiting service? And yet such a plan is not beyond the realm of possibility; look at Italy and the Pontine Marshes.

In fact, *they* will do no such thing. Things will work out in the traditional manner: the Maltese, the fugitives from the Kasbah, the ne'er-do-well from Castille or Aragon, the publican from Marseille, etc., etc., all this riff-raff will slip in. A Café du Commerce will be built and the pundits of the Civil Service will go there and drink the gall of wasted time with their *anis* and they will yawn and yawn because a man is obliged to yawn when he finds himself in so doubtful a situation. And they will curse Colonial life! And they will think of the Café du Commerce in their own home towns. They will have their 'poker-dice' and their *zanzibar*, in their nice new colony. But where do we come in? Are we always to be left dreaming, like Perrette?¹⁴

And that dream town, in a few years, could have risen on the amphitheatre according to a well-established plan; it could have combined a perfect economy of money and of effort. And there the glistening apartment blocks, conceived in harmony with the

¹⁴ Fables de la Fontaine. (Tr.)

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African sun, equipped with every modern comfort thanks to a rigorously scientific use of space, would have risen one behind the other, in quincunx, in perfect order, everything in its right place, everything ready as and when needed. The whole of the amphitheatre space would have been one large garden-park, lined with footpaths coming up from the base and covered with palm trees, eucalyptus, gum trees and bananas; fruit and flowers. From the summit of the amphitheatre, a simple irrigation scheme would have distributed water taken from the Oued and would generously have fertilised ground which up to that time had been entirely burnt up by the sun. By means of a cunningly designed plan, a single motor-way would have sufficed to serve all the apartment blocks, and that would have been set at a height of fifteen feet (in the air) above the park lands.

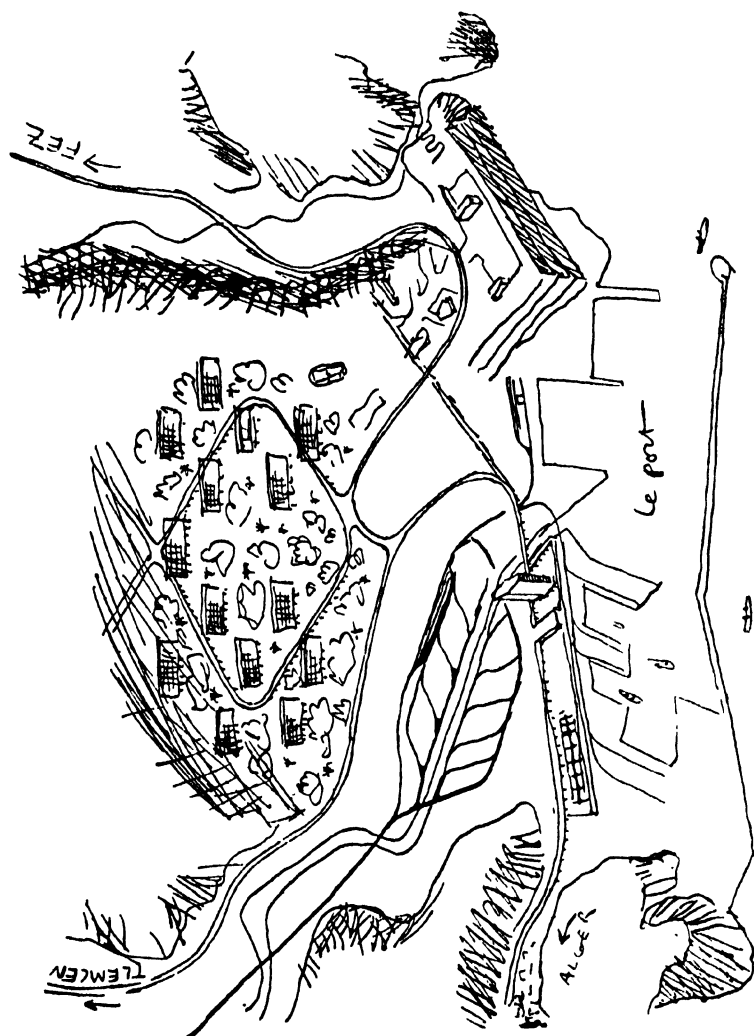
Offices would have been installed in a model building, standing up like a landmark, overlooking the port; and here the storeys of a steel framework would have grown in the course of years, would have been added as they were needed. In our scheme, the industrial city takes possession of the rail system which has been set up within the estuary. The civic centre groups its Town Hall, its Club, its Communal Hall, its stadium, on the breakwater. The hotel is an honest inn designed for travellers of modest means, and for reasons easy to imagine, it stands near the centre, a palace dominating the bay. Ships from the Mediterranean, going to the Indies, to America, or coming back, would have put into port at Nemours, the modern city, brilliant and scientific creation of France. And the mother-country would have been honourably reflected in her smiling colony, set at the opening of the roads going down to the South. . . .

But at my last visit, an event of public importance *was* taking place: they were inaugurating *the* house with the big number!¹⁵ There it stood, all alone, stuck in the middle of what should have been the residential quarter. . . . Decidedly, the town was beginning to get a move on. . . .

Let's take another example:

What will be done in the case of that other enterprise, the Canal des Deux-Mers, enlarged waterway of Riquet?

¹⁵ Red Light! (Tr.)



Nemours

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Between the Atlantic and the Mediterranean, beautiful, lush lands spread out, noble sites, towns, villages, and all the requirements of an agricultural community. Must the canal become one of those unkempt, unseemly intruders bringing with it all the sadness and filth which the nineteenth century scattered so nefariously along the banks of its railways?

Might we not rather anticipate the new-comer as gallant and graceful, a knight riding through beautiful lands surrounded by a brilliant bevy of model industrial cities, cities equipped with *radiant* homes? Might we not hope for impeccable locks, motorway bridges, daring in their engineering, distinguished in form, and on those wide new waterways, the ships of our dreams, large ships for war or peace, gliding through the foliage and the meadows, through the vineyards and the cornfields: would this not be the veritable apotheosis of the Planners' dream? Could not the Planner of the future order not only our aesthetic but our human destiny? So that after all the horror and delirium of war, France might be able to show in such noble work that the spirit can flower again and with it the will to live. And upon whom or what, you ask, would depend the future of this Canal des Deux-Mers? Yes, please tell us upon whom or what does all this depend.

And the answer, alas, is upon inattention, negligence, accident. Commissions are set up, 'specialists' are nominated, concessions are divided out, and each man savagely, greedily, works away in his own little corner, on a patch of ground, trying to make the most possible out of his share in the venture. We know the whole sordid business, in advance; experience can foresee the destruction of the landscape, to say nothing of human hopes. We can foresee that vista of inhuman factories; the rail, the road, the noise; we can foresee the warehouses, rubbish heaps and the workers' houses all huddled pell-mell. And the Café of the Lock, or the Café of the Two Seas, at right-angles to the Bridge of Disillusion and Pastiche. And the political parties, and the class war. And the preparation for a new war (yes, they would even dare that) and the renewing all over again of what we have been through in these last hundred years: years in which men's work was pursued in lassitude, in defiance of the joys that life should give. Or might we hope for a miracle? Might we hope for a well-organised plan, for foresight, for a symphony of life, the brotherhood of man?

WATERWAYS

Let us try to believe in the miracle. A building charter has been drawn up. Through the lands, among the valleys and the mountains runs a vast waterway. Technical difficulties are considerable. Engineers get on the job; the bed is excavated, walled up, lined with concrete. The living *route* is open. An industrial region is coming into being, is about to be born on the sides of the canal. But this, above all, should be kept in mind: we must not allow the new inhabitants to arrive in the usual haphazard manner, nor allow just anyone to come in, according to the fevers of speculation. Seamen have their own ideas, and their traditions; the representatives of commerce have some 'good tricks', which don't cost much (!). And then there are the housing 'specialists', those jerry-builders who produce the tragic workers' *estates* and mining settlements. And all the while, some of us still cherish a hope, a dream. But, 'we have done our best', they say, 'see, the workers have been lodged in the Basque style, in the Norman style; some of them have even been lodged in the *modern*!'

When will this anarchy cease, this state of affairs which is not liberty, but which always hides some cruel exploitation?

At our Congresses of the C.I.A.M., a reasonable town-planning evolved. *A city is the tangible expression of an economic region.*¹⁶ And the Canal des Deux-Mers is no less than an economic unit linking sea and ocean; it must be a drawn-out city: city of a straight line.

Working quarters must be kept in practical contact with the waterways, with highroad and railway. There is a fundamental *biology* for each of these routes; to bring them together will require a delicate operation, both technical, and aesthetic from the standpoint of preserving the landscape; it is possible, it could be superb. But it is useless to undertake anything unless everything has been foreseen, planned in advance, allotted, designed at the moment when the whole is still available. The project does not concern the canal alone, as an isolated issue, it will also absorb all that life which inevitably must burst into being along its course. But if everything is foreseen, if the Planners have a wide enough scope, if they can be made to assert the ethical background of the whole undertaking, work according to a standard and proper rules, then a magnificent symphony, a great enter-

¹⁶ *Logis et Loisirs* (Home and Leisure), 5th Congress of the C.I.A.M., Paris, 1937, published by 'l'Architecture d'Aujourd'hui'.

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prise will be born. And time will not crush it but rather will help it to expand.

The Canal des Deux-Mers runs through open spaces; it must become a unifying principle, not tend to separation. It must not become the means of establishing some unexpected frontier between 'men of the South' and 'men of the North', but must effect a fusion. And thus it can realise an essentially modern requirement, an overhaul of the whole approach to the problem of the land; the creation of a liaison between the peasant and industry.

This fusion, in opposition to the barriers thrown across life by arbitrary and ephemeral political divisions, is a law of nature. It implies continuity, a well-balanced relation of neighbours, unity in diversity. It is the fruit of a constructive spirit which co-ordinates and seeks to dispose of obstacles. It is not the fruit of that poisonous spirit of destruction which seeks nothing but enmity; seeks to separate us by means of the trenches, bayonets and tanks; seeks rivers of blood in which we should all perish, our bodies and our works. In the course of the last decade, a feeling of co-operation has developed among the younger Planners, a productive emulation combined with the spirit of unity. In Algiers, the architects and planners were linked up with poets, journalists and men of action.

At one moment, we all decided to produce a Review, dedicated to friendship, and the name of which would be:

'THE 5 CITIES

'Marseille

'Barcelona

'Rome (Ostia)

'Algiers

'Athens'

And across the centuries (two thousand years), through this modest gesture of good fellowship it was hoped that the sea, that sea which cradled Humanism, might once more begin to count in the lives of men. Leave the younger men to their natural bent: instinctively they turn to vital things; they have a sense of direction.

VI THE AIR

NOBODY will be surprised at the importance that I am about to give to those first aircraft trials which were a prelude to the aviation of to-day. Because such events, seen by a casual observer of the time, are worth remembering as a record of difficulties in *taking off*, not so much of the planes themselves as of a discovery destined to change the face of the world.

Furthermore, the plane, as we shall see at the end of this chapter, has not only created the airways, but from new heights has allowed the Planner, for the first time, to become conscious of the urgency and the scope of his task. It has done this by showing him the hitherto hidden and monstrous corruption of our cities; has impressed upon him also a new dimension with all its possibility of grandeur. The aeroplane has given us a *bird's-eye view*.

The First Airmen

One spring evening, 1909, from my student's attic on the Quai St Michel, I first heard a noise which seemed to fill the whole of the Paris sky; before that, men had only been conscious of one voice from above, roaring or thundering: the storm. At my dormer window, I stretched my neck to discover this unknown disturber of the peace. The Comte de Lambert, having succeeded in 'getting away' from Juvisy, had headed for Paris and flown round the Eiffel Tower at a height of 1,000 feet.

It was marvellous! Our dreams, then, could be realised, however daring.

That night in Paris there was great rejoicing.

It was in the spring of 1909 that a vision became concrete by the hands of men and flew over the city.

For some years already, a few madmen, in the flat alfalfa fields, had persistently struggled with superhuman odds: Santos-

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Dumont, the brothers Wright, Voisin, Latham, Farman, etc., my memory claims no historic precision. And who, then, were these pig-headed fellows lost in the plains? What claim had they to a place on the horizon, they who seemed fated to remain ignominiously on the ground, surrounded by their swallows of wood and canvas? Dazzling them from its zenith each day the sun unmoved pursued its course from one horizon to the other, and in the morning these obdurate men started again. . . . started . . . to remain on the ground!

Nobody cared, in that agreeable Paris of before-the-last-war, city strewn with placid four-wheeler cabs; 'Gee up', chanted the coachmen in their papier mâché top hats, shiny and white in the summer sun. Rare taxis with their archaic motors go 'teuf-teuf' along the highways and are already disturbing us a little: these were the first instruments of death to be known in our streets. A few motor buses here and there were described as meteors and were eyed askance.

Nevertheless, events were taking shape and public opinion began to stir. And then one day the airmen thought it was time to come out into the open. The JUVISY Meeting was organised. Latham, Voisin, perhaps the Wrights, announced that at 2 p.m. on a Sunday afternoon they would fly. The sky was blue, it was spring. All the world and his wife would go and see!

Three hundred thousand of us went to see it. The railways made no preparation, which only goes to prove that nobody foresees the things that really matter. From nine in the morning, on the P.O. line, the trains were crowded. The station-master must have said to himself, 'The sky is blue, it's springtime, Parisians are having an outing'. He stuck on a few extra carriages. But we were 300,000. He doubled the service. We were 300,000. Things began to look black. I, myself, started at mid-day. Juvisy is 15 kilometres from Paris; we arrived at 7 p.m. But on the way, we had not been bored: all along the line, where we camped like gipsies, we were passed by trains going back; systematically, we stoned them with pebbles designed for ballast. Inside our own train, we had smashed up everything that was breakable. In the trains behind us (hastily thrown together and proceeding all of a huddle) they followed our example. We also smashed up the signal boxes. Was it a symbolic assault by the neophytes of the air against that *black* tyranny of the railroad? Or was it a demonstration by the forces

of optimism who felt that in our country laziness was systematically blocking the way? Or was it anarchy?

Towards four o'clock, the authorities of one suburban station after another brought out their firemen to intimidate us. And then, at last, we arrived. At Juvisy, it was already pitch dark. Our lynch-law exploits had given us an appetite; we tried to rush from the station in search of snacks. But here a surprise was in store. The station doors were barred. They were guarded by soldiers with fixed bayonets.

'Idiots', said the soldiers. 'Just look, there are 300,000 outside who want to go home. Hurry and get back into the train that brought you, unless you want to spend the night on the platform!'

And that was the sign for a fine exhibition of intelligence, for a demonstration of human solidarity, of the spirit of co-operation. Since our train made no attempt to start, and since others kept arriving crowded with would-be spectators of the Aviation Meeting, we just smashed up the station. First the waiting-rooms, then the offices, and then the station-master's own special lair. I can still see it: furniture all over the place and electric wires in disordered skeins. A gentleman with a walking stick (and apparently a temperament of steel!) methodically played darts into the mirrors. . . .

At 11 p.m. we returned to Paris. Restaurants were shut. We went hungry to bed. Significant portents must have been in the air to have upset to such a point of frenzy a quiet, springtime Sunday afternoon.

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Things were beginning to stir: the newspapers announced that Voisin had set off, that Latham had flown, that . . .

One fine afternoon when the sky was blue, Auguste Perret, with whom I was working, burst into the studio waving a late edition of the *Intransigeant*: 'Blériot has crossed the Channel! War is finished: war is no longer possible. There are no more frontiers!' The thirty years which followed have singularly belied that prophecy. But who knows? Let's wait a little longer.

It had happened. Man, heavier than air, in his machine, heavier than air, had taken flight.

This was before the Great War.

There was no definite objective. Nobody had any idea that some day it might have some practical utility. That its usefulness was, in fact, to become the outstanding symbol of the new age. It is good to ponder this fundamental fact: great discoveries proceed from disinterested motives, their consequences cannot be foreseen. The inventor, the creative genius, pursues a chimera of the spirit; and sometimes he comes unexpectedly face to face with it at the cross-roads. Again and always, I repeat, we must be vigilant, for the whole of our lives and every minute we must be ready to seize the miracle which lies latent in all things. It seems that Pascal, also, said this to Christians, which only goes to prove how right he always was.

Then came the Great War. Man had acquired the 'bird's-eye' view. What a godsend, we could now spy out the enemy from above. What a godsend; we could now go out at night, in league with the darkness, go out with our torpedoes to sow death upon the sleeping cities. And what a godsend to be able to come with our machine-guns and spit death upon men crouching in trenches.

War proved a tremendous lever to aviation. At top speed, by order of the State, by order of Authority, all doors were thrown open to research. And they succeeded, they achieved their ends; overwhelming progress was made.

The end was death and destruction. Authority was in its element.

If war had not intervened, aviation would still be mewling in the small mechanics' workshops, on the open alfalfa fields, and Parliament would be declaring that the country had something better to do than pay attention to doubtful people who were claiming to 'poison our beautiful French sky, our beautiful sky of the Ile-de-France, our beautiful sky of Paris, so pure and virginal, the country's sky, etc.' (Eighty years before that, Thiers, an intelligent man and Prime Minister, had declared that Members of Parliament had more serious matters to attend to than the fantastic claims of a few eccentrics who wished by means of a road of iron—yes, sir, *a road of iron*—to connect one city with another.)

Thus, war was the infernal laboratory in which aviation grew up, developed impeccable, streamlined.

And war developed, too, the race of airmen, men whose daily food was audacity, mad courage, contempt for death: the *aces*.

Then peace. Nothing more to destroy. Aviation was out of a job. The factories stopped building planes and began to build cars instead. I drove for fifteen years in a car which had on its bonnet two outspread wings and this paradoxical legend (nostalgic): 'VOISIN AIRCRAFT'. Icarus, whose wings have been cut, has attached four wheels to his behind! It is well to remember that as soon as peace came, aeroplanes were abandoned, left by the roadside, unnecessary, useless!!!

And when some madmen (new madmen, more madmen, always madmen), as the time slipped by, began to say and to write that 'the aeroplane ought to be transporting passengers, ought to be carrying mail and merchandise, that it must become an implement of domestic utility, etc.', everyone thought that aberrations were starting all over again.

But some were persistent, and commercial lines were created. Oh, without much support from the Authorities. They flew 'commercially' from capital to capital for many years, flew *without beacons*, without intermediary airports, without security measures of any kind, with great daring. The public was completely indifferent. It hadn't entered their heads that some day this might become 'something for them'. And contemporary history is no different. One has vision, discernment: one seeks to put such qualities into effect: you are mad, Monsieur: you are looking for Utopia!

Thus time rolls on. But madmen are the vanguard, and, century by century, they lead this old world by the nose.

In 1928, I had to go to Moscow and decided to shorten the journey and go by plane. Thus I became acquainted with the airports of Bourget, Cologne, Berlin. I found that by dint of determination and faith, a few people had managed little by little and as best they could to install hangars, set up buildings with

THE FOUR ROUTES

their equipment, and train personnel. I also noted that airports had become stations. That one left 'on time' and arrived, Oh, miracle, to the minute. We believe only what we see, *when things have been done*.

Once, at Amsterdam, where several important lines crossed, I was invited to the airport commander's look-out and was able to see the complete traffic movement of the station. Here is the plane for Paris. Look out, there goes London; Zurich; Berlin. Here is the plane for Sweden. They place themselves at the entrance of the station: they let off passengers, luggage and mail: then they take up their positions to start again. A signal: a colour here, a beacon there, and the plane is away, the planes are all away, but here are others, coming in.

And then one night, at Paris, a telegram announced that Lindbergh was flying over French territory, that at a given time in the dark, he would be at Bourget. And Paris rushed out over every road to meet this amazing man. What an ovation! What rejoicing! What is needed for the masses is neither facts nor reason nor calculations nor schemes, but some sensational exhibition: something symbolical. Or at least that they consider symbolical. Then suddenly, they cry bravo!

Lindbergh with his cat, leaving the cinema at midnight in America and landing in Paris, that was a gala occasion. And everybody said, 'a magnificent feat of daring'.

I, myself, have always preferred the crossing made by Coste: that, I feel, was the really superb adventure.

Dieudonné Coste decided to fly the Atlantic, starting from Paris; the winds are harder to tackle in that direction.

He prepares for his flight, attends to his plane, puts the finishing touches, and keeps it at top pitch. Scientifically, he prepares his route. And then, every day for months, he watches the weather. The winds on this route have meant death to many a daring flyer. Coste is not out to die, but to cross the Atlantic. How many nights were spent watching, taking meteorological soundings at every point of the route. The dawn comes: let's go to bed, we shan't take off to-day, the winds are not favourable.

Weeks, months, go by. The public begins to sneer: 'He goes, he doesn't go'. Friends, rivals, everybody laughs. But, master of his nerves, his susceptibility, his vanity, his pride, Coste does not take off. Each night he waits for the propitious moment, the proper moment, the only acceptable one, the moment of success and not of death.

All of a sudden: 'He's off!'

The plane gets away. The plane arrives. New York rejoices; gives a tremendous welcome. Magnificent reception. Magnificent crossing. Magnificent adventure.

This is successful achievement, to be able to say to oneself: 'I want to attain a certain end, and I shall leave no stone unturned. I shall wait for the proper moment. I shall succeed in what I have decided to do. I shall arrive at the chosen time, at the proper place, calm and smiling, a conqueror and not a casualty.' Real heroes are well groomed and absolutely controlled. They are neither unshaven, nor unkempt, nor bloodstained. The gods themselves smile. That is what is meant by strength of character.

And that's the attitude of Mermoz, too, of the man who in spite of everything, of treachery, hostility, founded the air-route France-South America. His memory records a long struggle with events and the elements; but his life is calm and controlled.

And we who in our field also wish to change things to-day, must be of that temper, too. Isn't that so, Saint-Exupéry, worthy comrade of those unruffled heroes?

The Airways

I love the airways. We owe all kinds of discoveries to aviation. If fog is in the air, you get the amazing sensation of being a fixed point in a mass of marble. You sit there and your eye has only one objective: the extremity of the wing. The wing is motionless, inert matter all around is static; if it weren't that you can hear the motor, you would be tempted to think, 'we are caught in the ice-belt'. Nevertheless, reason tells you that you are flying at the rate of 250 miles an hour. And after this short respite in space we soar, vertically, the plane pierces the clouds, rises and is suddenly above them. You are 5,000 feet above the earth and the sky has

THE FOUR ROUTES

taken on the green of the stratosphere. The sun warms you in mid-winter, a sun which men have not yet known because they are still stuck on the ground. In infinite space, all is well-rounded sculpture in the whitest of marble: shadows are firm; the roundness of whirlpools and towers well defined. At the farthest point of this infinity of white distance, a great black ball comes into sight. A light comes up inside the fuselage. 'Strap yourselves into your belts.' The plane dives: in a few seconds it strikes the obstacle, goes into it, goes through it; thunder and lightning, flashes and torrential rain; the wings drip; it is black as pitch inside the plane. We have come through, not a fraction out of our course. . . . And at the exact minute, we are on the ground in front of the customs shed. Thus we straddle the earth in spite of all the fury of the elements.

No exact prophecies can yet be made as to the forms that aviation will take. The most dazzling discoveries are in progress and some new technical invention might any day come along and change all our preconceptions. Will the plane of the future, for instance, rise vertically from the earth instead of rushing like a mad bull through the grass of the aerodrome?

The air-routes have been entered in the fourth section of our Planning because for the moment one could only with reservations attempt to outline a scheme.

In fact, the airways are now requiring stations for their proper functioning. Services have already been organised with a rigorous precision such as, at the time of the Armistice of 1918, nobody could have imagined. An amazing spectacle is offered by these international airways: the aerodromes of Amsterdam, Bourget, Rio. Americans of the U.S.A. are putting the final touches to an aerodrome which will assure a daily service for 10,000 travellers. Private enterprise in this field is still a dark horse.

I have not attempted in this book to forecast the future. I am concerned with actuality only; for the past twenty years, my effort has been inflexibly concerned with to-day and never with to-morrow, of which I know nothing.

I find anything in the nature of a 'Life of the Future', of a 'Metropolis' distasteful: either such prophecies are idiotic in their assessment of the present, or indulge exaggerated hypothetical conjectures, or they exhibit arbitrary methods and conclusions. They drag us into that dangerous wake of futurism in which to-



Airport at Rio de Janeiro

THE FOUR ROUTES

tomorrow equals never. To-day is enough; with our hands full of the realities of to-day, let us build.

So far, I have only had two encouraging impressions as to the immense potentiality of air-routes. In 1929, when I conceived the ideal situation for the airport at Buenos Aires; in 1936, when I spent six weeks in an office building at Rio de Janeiro overlooking the new aerodrome, port of call for the lines: France-Buenos Aires; Germany-Buenos Aires; New York-Buenos Aires. Transatlantic planes came and went at all hours, aero- and hydro-planes. The whole magnificent arrangement is well worth a quick sketch. An engineer devised it; originally, old-fashioned planning of a type which, it seems to us, offers no solution of modern problems, had intended this spot for the erection of a Capitol. The Capitol had not been built since the Brazilians had little notion what to do with a Capitol if they got one. The engineer intervened; this is the place for an aerodrome.

A mountain was removed—a 'moro'—and thrown into the sea.

Thus is a proper contemporary precedence established: a triumph of Wings is well worth the loss of a Capitol. We have suffered long enough that sordid exile in the suburbs of Bourget or Croydon; at Rio, the planes come out of the sky to land direct on the waterfront.

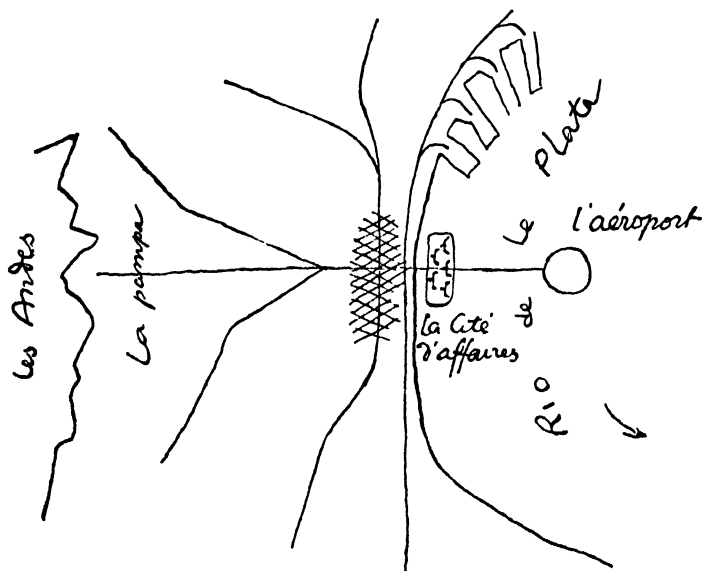
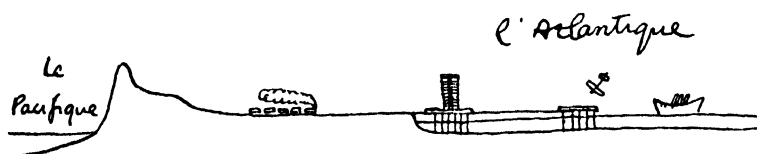
At Buenos Aires, in 1929, as I was trying to tell the public where best to place the *four routes*, I began to think in terms of *geography* and *world*, and finally arrived by means of that thought and the lines which expressed it at a prophetic point of convergence: at a given precise spot where the lines would best achieve their end. I had drawn the Atlantic with its ships from Europe, the Cordillière of the Andes—gate to the Pacific—the tablelands, the *pampa*, and that place where the waters cut through the *barranca*. Planes in the air, boats on the water, rails running through the grasses, and the highroads which had helped to colonise. The sweeping circular lines crossed in one precise American zone, which was Buenos Aires, and at Buenos Aires itself, their course automatically determined the future lay-out which the city's urbanisation would have to take.

Alas, so much sniggering, so much shrugging of shoulders, had greeted such methods in Europe, that in 1938, having been asked to complete a key plan for Buenos Aires, in collaboration with two Argentine architects, I had dropped this matter of the aero-

THE AIR

station and allowed for a more conservative installation, to the south of the city, on the borders of the delta.

The Ambassador of the Argentine, in Paris, however, seemed surprised. He was courteously categorical: I was to have 'no fear' and to put the aerodrome back on that propitious spot which had



Airport at Buenos Aires

virtually been ordained by the gods! Happy country, able to remain unabashed at the impact of a daring idea!

The Plane Accuses

We knew that our cities were submerged in squalor, held in contempt by a majority of their inhabitants, that they personified

THE FOUR ROUTES

indifference to the fate of the race, of society, of the family, of a swarm of sentient creatures.

We knew it, but we ignored the full scope and horror of physical dirt and lack of moral integrity in the relationship of cities towards their inhabitants. The plane has enlightened us. The plane has seen. The plane has indicted.

We now have a record, aero-photographic plates, which proves that at all costs we must save our cities.

There is a pitch of aberration beyond which one cannot be permitted to go. There comes a moment when human beings and society in general must be shaken out of their torpor, their misery, their misfortunes.

With the eye of an eagle, the plane examines cities: London, Paris, Berlin, New York, Algiers, Buenos Aires, Sao Paulo. Sinister balance sheet!

The plane exposes the fact that men have built cities not for the satisfaction of mankind, not to engender happiness, *but solely to make money at mankind's expense*. Thus what touches most deeply the human heart, the very background of our daily lives, of love, of brotherhood, of all our woes, the home and the street which we can see from our windows, are gloomy, narrow, churlish, devoid of feeling, without grace. No trace of a noble sentiment went into their building; only one sordid passion: financial gain. One wearies of walking through the insensitive streets of innumerable quarters; you are oppressed, exhausted; you go home and close the door, trying to shut out the painful memory. In the meanwhile, millions of men and women, of children and the aged, pile up the joyless days of their existence.

And the plane observes, works quickly, sees quickly, never tires. In addition, the plane plunges deep into realism. Its implacable eye penetrates the misery of cities and brings back the photographic record for those who lack the courage to go and see for themselves—from the air.

Such are the great cities of the nineteenth century, unfinished, cruel, greedy.

The plane inaugurates in a superlative degree a new stage of consciousness, a modern conscience. The cities must be rescued from disaster; their rotten sections must be destroyed; new cities must be built.

And here is another lesson in town-planning which the 'bird's-eye' view of the plane afforded. I left Algiers one sunny winter's afternoon and we flew over the Atlas, towards the cities of the M'zab, to the south, in the third desert.

M'zab is the country of thirst and death. The Mozabites, banished, execrated by Islam, heretics marked out for slaughter, arrived here one day—the whole people—and it was so far away, and the land so appallingly barren, that they were left in peace; hunger and thirst, it was thought, would soon make an end of them. That was a thousand years ago!

They built the seven cities of the M'zab and laid out the seven oases: winter and summer cities.

I knew something of the summer city, one of the palm plantations, la Ghardaïa. I had been there in August, when the temperature was terrific. But as one walked under the date and apricot trees, revelled in lush foliage of peach or pomegranate, one was filled with well-being and coolness. A dazzling spectacle of water and verdure; 4,000 wells have been sunk in the rock at a depth of 250 to 360 feet; 90,000 date trees have been planted and furnish the daily food. I will say nothing of the houses of the oasis, mud houses, moulded by hand, and built with efficiency and a touching regard for the sensibilities of man. These plans should be quickly registered and deposited in the archives of our schools, recorded lest some accident (destruction, deterioration) overcome them. I have tried to do something about it, several times, without success.

The winter city, under the pitiless sun, impressed one, on the other hand, as a veritable hell of broken stones; narrow and steep declining streets, ominously silent walls, stagnation. One said to oneself: winter is the season of contrition, of repression, of lethargy . . . so much the worse!

The friend who pilots me in his little plane shows points on the horizon: there are the cities!

And then, like a sparrow-hawk, he circled one of them, drawing in progressively as he spiralled down, plunged, cleared the roofs, restarted an ascending spiral and, once more high in the air, rushed on.

In that way I discovered the lay-out of the cities of the M'zab. The plane had shown us everything, and what it had revealed carried an important lesson.

THE FOUR ROUTES

Behind the blind street wall, each of the gay little houses opened by means of three ample arcades on to an exquisite garden. The women ran out at the sound of our engine. All the inhabitants, under the arcades, watched our plane diminishing its spiral, and they waved us a surprised welcome as we passed like a tornado, just skirting the rooftops. Every house of the M'zab, yes, every house without exception, is a centre of happiness, of serenity, is founded upon the solid rock of fundamental truth. *This city exists to serve mankind*, to serve both body and soul. In the M'zab, no single family was allowed to go without its arcade and its garden.

A gulf separates the achievement of these desert tribes, men in tune with fundamentals, from our cruel, inhuman white civilisation, which the thirst for money is dragging to its doom and in which we must now choose between death or submission to the sacred rules of nature.

Luckily, we shall soon have to take stock of all that a view from the air implies of nobility, grandeur, style, as applied to the layout of cities.

The plane flying over forests, rivers, mountains and seas reveals some fundamental laws, simple principles which prevail in nature, and as a result we may hope that dignity, strength and a proper sense of values will become apparent in the aspect of our new cities. It will be a triumph of the mind proclaiming victory, leaving catastrophe behind. And the luminous aspect of cities—the plan—will be expressed on the ground in terms of a new order. The old limited dimensions, doors thirty or forty feet apart, narrow streets with their sinister gutters, stinking and noisy, will have ceased to exist. A new scale, a new and nobler dimension will animate the architecture of cities and the scope of construction. An era of great works for the public welfare will be crowned with radiant success. Every man will have acquired that normal right: happiness in the intimacy of his own home from day to day, and pride in collective achievement.

The aeroplane is a distinguishing mark of the new age. At the summit of an immense pyramid of mechanical progress, it opens up an era: rushes into it on wings.

The technical achievement of a hundred years given to pas-

sionate preparation, to research in the dark, has thrown down the civilisation of centuries.

To-day there lies before us a new machine age which must be brought into line with humane values.

The aeroplane, in the sky, carries our hearts above the humdrum of daily living. The plane has given us a 'bird's-eye' view.

And when the eye sees clearly, the mind makes wise decisions.

PART III

PLANNING OF THE ROUTES

THREE PROFESSIONS

THERE are two kinds of planning: good and bad. The bad has failed in every instance. The popular notion of planning is really not planning at all because it gets us nowhere. It subscribes weakly to all the conventions. Negligence, lack of courage, absence of imagination are responsible for the present collapse of our villages and countryside.

But there is a new idea of planning rising up all over the world. It grew from individual daring in every country after the first world war, 1914–1918.

At first they were dispersed and then one day they got together. In 1928, the C.I.A.M. (International Congress of Modern Architects) and their Committee of Action, C.I.R.P.A.C. (International Committee for the effective solution of modern architectural problems) were founded. In 1933, they drew up the *Charter of Athens*, creed of the new planning. On four continents, Europe, Asia, Africa, America, the intensive research work of the C.I.A.M. grew and (after study and discussion) arrived at conclusions of the utmost importance. Old theories were unequivocally abandoned and all rallied to the new and essentially *human* theses. For modern planning has as its primary object the happiness of man, or at least, that essential part of happiness which the proper ordering of a collective economy can offer.

And not only shall we war against the slums but we shall try to enlighten public opinion about the possibilities inherent in a *radiant home*. A constructive design for modern living can be made clear to everyone since plans have been established; the relevant authorities also have been informed as to their elementary and primary duties: town and country homes.

Youth gathers round, ready to participate, eager for instruction, desiring to bring its youthful energy to work which it understands so well because itself must soon feel the benefits.

The authorities, till now, knew nothing of modern planning.

PLANNING OF THE ROUTES

Beset on all sides by the savagery of conflicting opinions, they have acted without conviction.

They thought to get around the current dichotomy by a system of ca'canny. And cities have lapsed into semi-lunatic chaos. The country districts have been abandoned.

A new planning has been born at the summit of reforms and technical triumphs; of a plethora of amazing inventions throughout the last hundred years. Born, however, when all these would-be benefits had actually done little more than throw us into worse confusion. A final integration had become imperative. Without a synthesis, without harmony, society crumbles.

Let us take the city of Algiers as an example. The post-war period (after 1919) brought violent upheavals. What was to be done? Official geometry was not qualified to cope with events. So a particularly sterile area was handed over for experiment. An intelligent Mayor had perceived that Algiers-the-beautiful was being turned upside down; worse still, was being strangled. The battle of words began, technicians were called in, representing the two types of planning. It was a deadlock: ten years of controversy, of alternating fear and hope. The town well-nigh became asphyxiated; some twenty suburbs held it in a vice, while at the same time their sprawling growth had destroyed its natural cohesion and sapped its strength.

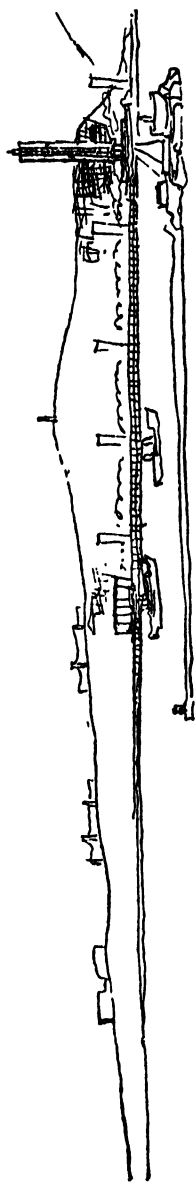
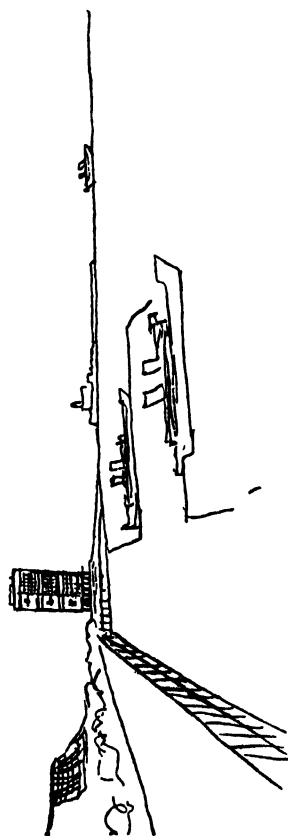
But one day, the Governor-General of Algiers and the Prefect—pioneers as Colonial Officials are often wont to be—decreed a general statute for the city's immense area, a general directive, a PLAN for the Algerian region. A city is admittedly *the tangible expression of a region* (see Charter of Athens). And immediately all barriers went down before this master-plan based on a realistic approach to the country's topography and its relation to the air. Algiers under the North African sun is also swept by the winds from all sides, and subject to the enchantment of its bay. Responsibility lay in the hands of five people of whom three were technicians. And immediately began a steady progress. The resources of modern technique called to the rescue, brought their solution: for the motor-ways, discrimination between fast and heavy traffic; zoning, that is to say, the arrangement on organic and natural lines of the city's diverse elements—the port, business and administrative quarters, residential section. A symphony develops: man and the land, architecture and nature, a vista

THREE PROFESSIONS

grandiose and splendid (for splendour is available everywhere to those who will take the trouble to seek it). We have saved the site, we have saved the treasure of the ages—indeed, we have managed to throw into relief the beauty of historic buildings. Thus, after ten years of confused discussion, of recrimination, a proper contemporary *reality* bursts spontaneously from the elements concerned: the site and the available technique. Algerians will be proud of having been the pioneers.

And compromise was not allowed to creep in. That hateful hybrid begotten of rot, coming always in the wake of private exploitation, emblem of bankrupt energy. But in order to bring such enterprises to a satisfactory conclusion a division of responsibilities becomes necessary. We must interrelate the three professions: construction, administration, planning: that is what we mean by FORESIGHT!

Seafront at Algiers



VII THE ART OF BUILDING

BE patient. A revolution in architecture has happened in a hundred years. And we have been brought by rational means to the stage at which the plant is just about to open. The aesthetic value of architecture is at stake. It is important to take style into consideration; beauty which ensures us smiling surroundings and gives freedom and happiness. Men of all cultures and many races are apprehensive. It is our new and clear-eyed youth, whole-heartedly committed to help us, who stress this question of beauty. The young are not yet worn out, have not been torn to shreds in the struggles of the last twenty years of architectural progress. Youth stands ready, fresh and energetic, feet planted firmly on the ground already gained by tired fighters. Youth indeed, and rightly, claims to gather the flower of a root planted with that intention.

International balance sheet: France is intrinsically at the root of the new architecture, France, the land of solid construction. Here we tolerate only that which gives due promise of duration, which is founded on reason, flexible to the laws of gravity, which shows mastery over the forces involved (it goes without saying that we have bypassed all that academic superstructure which is responsible for the character of some of our most prominent buildings and for the decadence of dwelling-houses; this superstructure was demolished in the course of a savage battle by clear-sighted thinkers, by men of integrity, and now we have brilliant means at our disposal). Our ancestors of the nineteenth century bequeathed us the scale; they were responsible for those vast edifices of steel and glass at the great Paris Exhibitions (and which have already, one might add, been demolished). We owe it to them to recapture the joyous impulse which animated their discoveries and startling inventions. The setback has lasted long enough; the ancestors are our witness.

PLANNING OF THE ROUTES

Germany was fast asleep until 1900. That is to say, she was enjoying an outmoded aesthetic, a war-like aesthetic of battle-mented gables—factories, town halls, churches, villas—in which Nuremburg Gothic and Heidelberg Renaissance were intermixed. Heavy, oppressive buildings in stone or red cement, in stone or green cement, in yellow or red brick. Such Gothic and Renaissance factories appalled me when in 1910 I was commissioned to go through most of the cities of this ultra-vital country, and I have never lost that first impression. This style, which was an outcome of the victory and new unity of 1870, covers the East, from the Rhine almost to Moscow, with its crenellated fringes. After 1900, after the new style of the great Paris Exhibition had burst upon the world, Germany came to a better state of mind.

Then the Germans began to borrow from the Belgians, the *avant garde*; from Otto Wagner of Vienna; garden cities from the English; they were caught up in a plethora of problems and instructions and, as usual, in collective discipline. From my point of view, the fundamental issue had not been touched, I mean *the new spirit*; the vertical buildings were merely false cathedrals, as if the men of to-day with their prosaic occupations wished to live like mountebanks.

A quite formidable revival of Baroque, of Empire, of all the periods; or extreme eccentricities like the Bismarck tower, the Bismarck memorial, monuments to *Germania* or to the collective German strength (monument of 'The Battle of the Peoples', at Leipzig). A drunken orgy of force.

I wrote, at that period (1913): 'William II must be a genius of peace to be able thus to stem the breaking storm.' When I showed to the German masters pictures of Auguste Perret's early work in reinforced concrete, significant in the annals of architectural history, they only laughed. They had scarcely begun to skim the surface of architecture, that exact science in which elegance, daring if need be, must combine with knowledge and reason.

After 1918, we came to the gasp of expressionism, disjointed styles, a moonstruck architecture, painting and sculpture for the psychiatrist's consulting-room.

Reaction towards 1923-25, inspired by a breath of modernism from Holland and from France. A great effort. Once more problems and commissions on a gigantic scale. Germany was built

after 1871; and rebuilt from 1900-14; she was still rebuilding after the defeat, equipping herself with houses; there were entire garden cities, factories, palaces, town halls.

A considerable intellectual activity played around these questions, there were remarkable periodicals and useful books. In Germany the whole question of 'knowing how to live' was placed before public opinion. Their national style was swollen by streams from far away; from France's most extreme manifestations; from Holland, Belgium, England, America, Sweden. . . .

From 1933 there was a strong national reaction against outside influence, against all those who were *feeling* anything very special, such idiosyncrasies stank—twilight painting of Berlin, the morbid, the questionable, all those who did in fact merit excommunication. In the midst of this general upheaval, a flicker of light shone: the authorities insisted upon sound materials for construction and a return to a tradition; a return was sought to that robust health which is latent in every race. And this was because, in fact, Berlin had conceived an alarming type of architecture, a pretentious modernism.

No system of motor-ways existed in Germany, they having had no Colbert. The motorist, through being obliged to drive zig-zag, suffered, and only began to revive after Karlsruhe, after coming into a section reorganised by Napoleon! But now, with the help of the youth organisations, superb motor speedways have been built in Germany from East to West. Already, in Italy, these had been forestalled by the *autostrada* Modane-Trieste, and before that Primo de Rivera had, for the first time in the history of the peninsula, surrounded Spain with a masterly motor-way. It was indeed that route, in my opinion, which cradled the revolution that brought Primo down. Finally, the Americans of the U.S.A. have recently begun to cover their country with an excellent system of speedways; they have initiated a new law of the road based on the requirements of the new speed.

Holland is a curious country, well worth knowing, the land of the alarm clock. I mean that these people are wakened every morning by the sea, which is *above* them. They have called themselves the Low Countries. So eccentric a topography, due to the most paradoxical use of human energy—to lay out one's territories below the sea-level—requires of them a tenacity, a meticulous care, a watchfulness and a never-relaxing upkeep. Seen from

the air this territory exceeds belief: the work of men's hands, tillage, crops, pasture lands, canals, the whole within a setting of protective dykes, equipped with windmills (now worked by electricity!) which day in, day out (and for a lifetime) continue to pump the water and throw it back into the sea. Geometry perfect and tireless. One can well understand that certain creative minds, inclined to the abstract, have accepted without hesitation the early austerities of steel, glass and concrete and have become their firm protagonists. One can well understand why they would incline to these: almost intangible, approximating more closely to pure thought than to the flesh; a kind of esoteric art.

The Italians, bred in a museum atmosphere, had reacted violently to futurism before the 1914 war. Fire, words and liberty! A veritable torrent of futurist talent, whose works were sounder by intention than in plastic achievement. A pioneer architect appeared among them—San-Elia—but he died at Carso. He only recently became known in France, through certain propagandist publications. Even Fascist Italy was quite prudent in matters of art.¹⁷ Art in any event is the living expression of the spirit of the age. The Italian people have begun to live vigorously, they are shaking off the past; they are looking to the future. Italy has an army of keen young architects who are influenced by the sun; by awareness of the plastic arts. There used to be an *academy* (and what an academy! Rome's Palais de Justice, Victor Emmanuel monument at the door of the Forum, the Milan railway station were its works); there was also the syndicate of architect-engineers. One could see a tendency to the modern, but the requirements of the state called for pomp. Italy, during the Fascist régime, brought into being a lively and attractive style; but she is now tactlessly superimposing the machine age upon the city of the Popes and the Caesars. Thus it is with considerable reservations that one considers the future of planning in relation to the Eternal City.

A young architecture appeared but was held back for inevitable reasons. Young men at Rome and Milan, but Milan before Rome, suddenly sprang up within the universal framework of modern architecture and displayed some outstanding qualities. The Latin peoples put body into work which in other hands inclines towards the abstract. In 1934, a warning: the Senate described these ten-

¹⁷ They did not, as in Germany, ban *the modern*. (Tr.)

dencies as anti-fascist; a heavy silence reigned for two weeks. And then one evening, for the first time in fifteen years, by a written communication to the audience, the Duce made his views known. It was on the occasion of a lecture on planning, given by a foreign visitor who happened to be unequivocally inspired by the *new spirit*. Taking as his pretext the violent controversy which had raged round plans for the new station at Florence, the Duce said: 'When I require a station to be built, it is in order that trains should run easily into or out of it. And I am not concerned with the Church which happens to be next door!' (Santa Maria Novella, with its fine paintings in the Spanish Chapel), a statement which produced delirious enthusiasm in the auditorium.

Strange moments of history, when the law of gravity and others hang in the balance on one man's word! But whether Mussolini's answer had been yes or no, the law of gravity and others equally fundamental would have had the last word, would finally determine a distinguished or an unthinkable result. After the inception of the Axis, buildings in Italy were increasingly required to express majesty and power—one even saw an attempt to export this type of art, to impose it in connection with the university city of Brazil, at Rio de Janeiro: auditorium, laboratories, studies, music rooms, halls for physics and library, just so much moonshine! And so Piranesi's engravings are revived, the lichen cleaned off and all the broken stone. The ruins are dressed up again, stones polished, orders of columns without entablature thrown up into the heavens, and great blind walls, impressive colonnades are planned and fountains and basins installed, in short, a lot of old knights in armour on parade; but there is nothing here that concerns the lives and work of the thousands of students of Brazil.

Berlin. Rome.

But Moscow came first. The October revolution was made by men of the West, I mean by tenacious political outlaws who worked from the back rooms of shoemakers in the lowest quarters of London, Paris, Berlin, Geneva: refugees whose lively intelligence had well sized up what was worth while in Western culture.

We knew what to expect of the Russian soul in letters and music . . . of the U.S.S.R.: we must build and simultaneously express the Revolution. We are poor, we have only wood, plaster

and pots of paint. Meyerhold Theatre and 'constructivist' architecture. Diagonals, plans faced obliquely, polychromy, dynamism. Then, under the influence of Vesnine, projects for factories, theatres, offices, clubs. Iron, glass, concrete, the West of the nineteenth century transcribed *à la Russe*, spacious, ample, a bit tragic, upright in its geometric rigidity, by the side of the bulbous Byzantine. But they didn't know how to build. Reinforced concrete was unknown in the new U.S.S.R. Plans got no further than the paper; it was a tradition to call in foreign technicians. There was a lot of fervour in designing, a prodigious amount. But nothing was built.

In 1928, however, this much had to be done, it became necessary to build the Palace of Co-operatives (victualling centre), designed to house 3,500 employees. A competition was opened between five well-known firms of architects, English, French, Viennese and one from Berlin. The Frenchman triumphed because his plans expressed both harmony and logic. The man (your humble servant) was summoned by the Commissar of the People, representing the future inhabitants of the building. 'This palace will be the largest building project yet undertaken by the present government. We know little of modern technique: we wish to learn; this building must serve as a model.' One can scarcely conceive, from a distance, the scope of such a task: to build using untrained man-power (a man-power, it is true, which was extraordinarily competent when concerned with the admirable woodwork of the Northern Churches, or those simple and lovely *isbas*). But the desire for knowledge was almost incredible at that period. France was much admired in the persons of her scholars and her artists.

'But', somebody said to me one day in the vast foreign section of the Moscow library, '*there isn't a single French technical textbook here*; your publishers send nothing. As to literature, just look at this whole room of German books, and here is the French section: two thin lines of books one metre long, and as to content, half of these are bookstall novelettes and the other half are pornographic.'

Construction work on the Palace started quickly. The Ministry of Foreign Affairs, at Paris, was delighted, 1929, 1930. The youth of Moscow were enthusiastic. Here, the State architects are twenty-five years old, and colossal tasks are entrusted to them.

At that period, it certainly was no help to be an academician and to sponsor classical styles; both silence and keeping in the shade were golden. The producer, Eisenstein, was finishing that great propaganda film for home consumption: *The General Line*, on the theme of agrarian reconstruction. It had been necessary, for the film, to build a model farm; Eisenstein, flourishing a book which had appeared in Paris in 1923, demanded a modern farm . . . built in the modern manner, and French. And so it was done. From the *isba* we jumped straight into the new age.

In 1932 it was decided to crown the achievement of the first Five-Year Plan by means of some grandiose building. A good programme, one which demanded all that the resources of modern technique could give. It should rise at the centre of Moscow, at the centre of all the Russias. Here again, the competition was restricted to five firms, two French, one Italian, one Viennese, one German. The Russians themselves contributed indirectly, as also the Americans. Excitement was at its peak in the city of the Kremlin, itself built some four centuries ago by an Italian architect, from Verona. To build, to build! The final choice is about to be made, the most modern project will naturally be chosen.

Oh! by no means, this time things are going to change! This is where we come up against the great volte-face of 1932. This time we are concerned with the Palace of all Palaces, expression of magnificence and power. And the magnificence and power will not be of the mind (of the spirit), but just a *stage setting*. And there is more than that involved: a blind force, a latent urge, nature, something primitive out of the steppes puts the clock back. The Russias are not western; the Russias are made up of *isbas* and of ancient palaces. An instinctive veneration—and, I repeat, quite natural, rooted in history—draws towards the venerable past, the palaces, the churches blazing with decoration. One doesn't change the soul of a people all of a sudden, by means of a revolutionary decree. It takes time for a new architecture to supplant traditions so deep rooted, satiety must first be reached. But that the masses have not yet felt, the masses with their nose to the grindstone. At this stage, the displaced academicians begin to manoeuvre: this palace must be sublime, they say, and propose insidiously: let the people pass the project in review! (a plebiscite). And then, due to the visual reaction of the dazzled masses,

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it was to copies of the Italian Renaissance that the palm went (model exhibited at the pavilion of the U.S.S.R. at the Paris Exhibition in 1937). This is a very special type of Renaissance, as a matter of fact, a style in which everything is exaggerated as in an etching (columns, statues, pediments, friezes crammed with figures). The Palace, instead of being 400 metres long, is set upright, set upon a narrow base; it is going to be four hundred and eighty metres high, far and away the highest building in the world! The U.S.S.R. is nearer in spirit to the U.S.A. than to any other line of thought.

And while this was going on, the young people who had been entrusted with commissions in the modern manner had built badly with reinforced concrete (not having sufficient knowledge), and that in a country with the continental climate of 40° of cold in winter and 45° of heat in summer! The forces of reaction found in all this the means to deal a knockout blow. And modern architecture was absolutely forbidden, no less! The circumstances were even made the occasion for this surprising dialectic: modern architecture is the expression of a capitalist society. And while they were about it, the painting of Picasso is *petit bourgeois*. And, confusion worse confounded, this final verdict in 1937, from Berlin and Moscow in unanimity: France is unique in the realisation of . . . a Regional Centre at the International Exhibition of Art and Technology. . . . It was the revolutionary countries, then, which were bowing down to the pastoral idylls of the Trianon.

In 1935, a single copy of my book *The Radiant City*, sent for perusal to Voks by the publisher, was returned to him as having 'no interest for the U.S.S.R.'

Such incidents are only natural. Architecture or art must have roots. And among contemporaries, it is only in France that persistent research has been current practice.

The Spanish Republic had devoted its best energies to social problems. Barcelona was endowed with a master-scheme based upon the most vital type of modern town-planning: the Macia plan. In the energetic hands of young Catalonian architects, new quarters of the city were rising, offshoots of the general lay-out.

Madrid showed no such clear-cut picture. In fact, Barcelona is geographically one of the most favourable spots in the world for modern planning: a brilliant destiny is the natural outcome of that territory, whereas Madrid, perched on a high plateau (2,500

feet) is a fortress of kings, of governments and of gold. It is sheltered from the sea, and hidden behind the Pyrenees; an arbitrary and unexpected concentration in such a spot, surrounded by sierras and desert plateaux.

A Latin renaissance had nevertheless been indicated for the past twenty years. Brazil and the Argentine were in the grip of a passion for building. Do we, in France, realise the character of Buenos Aires, Montevideo, Rio de Janeiro, Sao Paulo, Mexico? While we are slowly working out the plans of Henry IV, of Louis XIV, of Haussmann! Do we realise the affection that these Latin Americans feel for France, for Paris, for their 'second country'? For the constructive thought of that country, for men trained in the French tradition?

Our nonchalance in this connection is inconceivable, especially in view of the tireless insistence of other nations: of Germans, Italians, Americans of the U.S.A. I repeat again, a gesture by France, in the modern spirit, would unleash tremendous enthusiasm. They are looking to us. They say: will the French never make a move? They are waiting for our country which so admirably expressed the Middle Ages—land of superb cathedrals—to build once more for the New Age.

The Scandinavians were in a backwater, isolated from events on the Continent. They have endowed their countries with sound institutions and created a setting in which these could flourish. A Turkish architect recently said to me: 'I went to Sweden to study creative architecture, and town-planning. I made a detour and came back via Paris, in order to see Versailles. . . . By chance I came to your studio and there, to my stupefaction, I discovered the cradle of all this, the very origin of modern tendencies in architecture and planning'. I apologised to him for this, on my part, quite involuntary operation *in camera*!

The English are taking their time. One gets an impression of immutability. I know no other city which to the same extent as London suggests permanence. But the students are on the war-path. They have now demanded information about town-planning; in many places, new architecture is arising, of *good quality*, something which used to be our particular pride, something which H.B.M. of Paris and *Topaze* have thrown back into the attic. It was the English who preached the first aesthetic crusade; after the dawn of the machine age, the voice of Ruskin was heard.

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Painters, craftsmen, architects brought to life the Ruskin aesthetic. The new garden suburbs surrounded London with a measure of architectural revival. But the thought of Ruskin alone was an insufficient base. And London became the world's most scattered capital (a paradox).

The U.S.A. has been asleep within the gothic walls of its universities, having committed the duties of watchman to the skyscrapers. The world over, we can find no such sentinels as these! From afar, Manhattan is a meteoric flame in the dawn, on the Hudson; a terrifying fortress, not to be imagined by those who have not seen it—when one is on the outskirts, on a ship, or a bridge, or even inside, at the heart of the city. The U.S.A. is not yet modern, but it is the world's most prodigious workyard. The traffic catastrophe (automobile circulation) called for the setting up of a special committee. That stands for the beginning of a great awakening: to separate motorist and pedestrian. The Rockefellers (John and Nelson) have built their new Museum of Modern Art according to the most recent Parisian formulae, and they fill it with modern art which also comes mostly from Paris.

Everything in the U.S.A. needs to be remodelled: to be reassessed: architecture and planning. But what good quality they have achieved in the building trades, in the operations of building: what practical lessons for the West!

The U.S.A. is an adolescent country; neither its cities nor its country districts are adult; it is a stupendous torrent—before you reach the lake. The architecture has no distinguishing American feature except size; but everywhere, in this country without a past, are revealed racial echoes, reminiscences of travel, witnesses to strong emotions felt in connection with a dim European ancestry. They had a pioneer, nevertheless, a great architect: Sullivan of Chicago. His work still stands out as the strongest, the most pure. There are other estimable tendencies, but no sign yet of any flowering of a new age.

Switzerland, Belgium, Yugoslavia, Hungary, have taken an active part in the contemporary controversy in architecture. Czechoslovakia has rallied with youthful timidity to the cause. In the Transvaal, at Johannesburg (near the gold mines and the diamond beds), they publish an astonishing review in which a clear synthesis of architecture, planning, painting and sculpture has been established. The University, both tutors and students,

collaborates. And here, again, it is the voice of Paris which predominates.

At Warsaw, after 1918, there were modern reviews based on Paris. Subsequently, an awakening social sense stimulated the local architecture.

Tokio, on the horns of a dilemma, tugging between an extreme ancestral tradition and a marked urge to progress, is building the two-section house, connected by a door: house of the *Kimono* and of the smoking-jacket. And this remarkable fact remains: the spirit is identical and the frequently successful results are surprising; it is the Japanese who, of any tradition still claiming to exist to-day, have best maintained the cult of the dwelling-house. In jumping into the new age, they are indeed only linking up with their own national tradition.

China, ancient and aristocratic, raises at the centre of that admirable city Peking, the most modern of structures. And in these, they say, is seen the working out of their own tradition in all its integrity.

In Asia Minor, cradle of the new Turkey, impelled by Kemal Ataturk, who only believed in progress, the cities of Ankara, Smyrna, Istamboul are born and reborn in the new manner.

Thus is seen germinating the architecture of the machine age. Some create, others copy or interpret in their manner. And then arose the great anxiety: where are we heading, with such methods, with our new techniques, which are universal and belong to no one? Towards the building of a new civilisation? We wonder!

We must persevere and discover, each on his own ground, that sap which issues from the compost of the ages, sap that gives a crop of *natural* flowers and releases diverse essences. A happy profusion of the spirit's harvest; contrasted gems infinitely varied and resplendent.

It is the world's youth which will finally win through.

Youth and the Beaux-Arts School

The world's youth is working in universities and polytechnics. Men of an older generation note the surprising events which have recently transpired within the architectural field, assess them, and, from the standpoint of their own generosity, confidence and

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personal dynamic on the one hand, or alternatively from a basis of dishonesty, egotism, cupidity, they encourage or inveigh; but nevertheless, it is not they who are the sap of this new spring. We turn the page, the earth is destined for the rising generation, it is they for whom, in the last analysis, these things are being prepared, they who will own and use them.

Why then all this recrimination, so many brakes clamped down, these farcical appeals to 'the sacred soil of our country', appeals from men who themselves will soon be dust and ashes? Why these lamentations, these apocalyptic warnings in relation to the art of building, since these Jeremiahs themselves will soon be dead and the matter will no longer concern them?

Youth, to-day, has a motor engine in its belly and a plane in its heart. Their fingers, informed by some ill-defined spirit of the hour, seem naturally to manipulate gears and winches, quite safely and with passion. We were different. We were born in the first lap of the machine age. We have reached the dawn and are looking backwards, and yet here we are, victims of a profound propulsion which urges us forward, out of this outworn era (a period which has seen everything in its time: both hope and disaster).

According to the hazards of a world-wide dissemination of the seeds of the spirit, students in the Universities of Columbia or Harvard become alert and question their teachers. At Buenos Aires they clamour within the Faculty of 'exact sciences' itself. At Prague, at Tokio, at Zurich (under the patriarchal aegis of Karl Moser), their masters explain the new world. At London, the students hand their Rector a note-book containing the programme of studies which they consider necessary, and these include town-planning. At Warsaw and Johannesburg, students and professors together edit explosive reviews! These technical reviews, these essentially contemporary magazines, certain books, manifestoes, syntheses, exist without regard to latitude or longitude—a universal or spontaneous product. And concerning those 'Institutes' which control learning; the timidity and laziness which hold them back are powerless against the more astute, ubiquitous masters whose intelligence pierces walls and doors, transcends regulations and programmes. We shall see what magnetic poles all these will reveal. We shall follow the orientation of their individual compasses, we shall see how they converge in

given places, in relation to existing theory or achievement; we shall see where those needles which so implacably direct the world's youth will lead them.

We have come into a new period. The paper age has replaced steel: period of *information*; manifold and instantaneously universal. What hermetic frontier can arrest the waves? The waves go through. That which is not yet known is apprehended. Mankind defends itself from suffocation. The professors with their bits of paper covered with letters, figures, innumerable and minutely detailed images, it is they who are stimulating a universal *stimmung*.

Contemporary equivalent of the *companions* of the Middle Ages, the young, once out of their universities, overrun the highways of the world. Curiosity devours them. A diploma in their pockets, they set off to go round the world, or at least, around Europe. According to their individual preference, some include the Acropolis in their wanderings, others will satisfy a more practical taste in visiting the new social enterprises of Stockholm.

But all roads lead to Paris, city enshrined in the hearts of all the world because, for a thousand years, her creative invention has never lapsed. They meet again within the walls of certain well-known studios,¹⁸ working there for the space of six months, one year, five years; in the fever of research, they make friends; in future, they will correspond, they will help each other in spite of frontiers and oceans; they will be able to call upon each other for long or short periods of collaboration. One tie unites them, one faith: modern architecture.

We are far from that sooty cycle of the princes of the railroad, when architecture had fallen to the bottom of the abyss. And by this concentration of universal youth, this unity in pursuit of the same passion, we can see an army barbed with optimism arising, an army which will create *to-morrow* and install a world-wide harmony of procedure. From now on, there is a great gulf fixed between those who have felt the call of a real *vocation* in architecture, and those who just need a job. A new integration of architecture is being felt all over the world, in these new Middle Ages, a new white flowering is in preparation, because the new architecture (a matter of deep significance) comes to us also in white.

And white implies, in order to shine, the presence (in the

¹⁸ i.e., architectural workshops. (Tr.)

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spectrum) of the most lively assembly of colours—materially and of the spirit. It is significant that modern painting, having arrived on the outskirts of this new age, has reinstated the colour white which includes all polychromy. In the same manner, the sculptor has again found the white light, reflected in his rich *plastique*, swollen with sap. White denotes neither limitation nor austerity, but joy. White is the synthetic product of the seven colours of the prism in movement, which is profoundly significant. White is the great pulchrum of colour. Many mediaeval churches were white. Try to visualise their whiteness: luminous structures, cheerful with the lively and solid interplay of ribs and pillars, the great glass sections of the transept, transparent, made up of lively little diamonds set in lead, resembling some enchanting fish net (Moret-sur-le-Loing, and so many others). And often stained-glass windows were brilliant rather than sombre (Laon, Cravant, Villeneuve-sur-Yonn, Brou). The dirt came later with the coal of the factories. With growing certainty, I see our cathedrals white.

Miniature painters in France, in Flanders and Holland, in the museums and art galleries of London or Amsterdam, have clarified this issue; the deterioration caused by soot, dirt, patina, bitumen, is the work of time and not of the spirit. And to sum up, let us frankly ask the question: Is white a symbol of poverty, of privation? No, it is the emblem of generous and overflowing hearts.

Patience! The arts of this new age are lined up, they are ready, reformed, recast, their reconstruction has been accomplished. May the breath of art, as the breath of life, infuse with its power; may the love of art once more permeate that architecture which has fallen so low. For we have arrived at an integration. Prophetic works forecast it. The lever of action has been created; the world is in upheaval, in suspension, on the march. War has shattered and opened up, the future is spread out before us.

It is by means of the quality of each individual concerned that modern architecture will accomplish its decisive stage. In the field of construction and the organisation of the modern plan, in aesthetics also, solutions have already been achieved or, at least, are in sight. The sun and topography dictate; the deep-laid trace of varied civilisations pursues its tireless way: these are immanent factors which count. Just as one has seen French Gothic take on specific and indigenous forms when transferred to Spain, to Ger-

many, to Italy, in the same way modern architecture will become one with the land of each country and its culture, will be welded by the very integrity of the work itself since this will be conditioned by its surroundings and objectives. Diversity there will be because materials will be different, the light also; because the sites will be on the flat lands or on the little hills and mountains, and last but not least, because men's minds the world over display an ingratiating diversity. But a diversity to be expressed in unity, and not cacophonous.

The major arts are ready. Outworn words must be toned down. The term *builder* will group all those who, by means either of machine or hand, are called to re-equip our civilisation: a magnificent wheel revealing in sequence its full gamut from mathematical calculation to imagination pure. Until now, the term *builder* only designated the members of building corporations, cabinet-makers, mechanics. But to-day everything can be used, everything which can drag the needed elements from the earth and transmute them; everything which can help to transport and lift as high as we wish in the air; to manufacture, carve, cut, assemble, screw, solder, model, mould, melt down, to finish off. Universality of the *builder*. It is this great force that we must bring to the country, to equip it and build new shelters for men, for groups, for ideas, for thought—the stupendous power of industry will soon take building in hand; the vocation of architect will open out into an immense fan of which each articulated section will grow and flourish from a mutual base.

A conscientious architect cannot be less than builder, painter and sculptor. If he is not all these in actual fact, he will at least have the potentialities in his mind. Sensibility must distinguish the architect since it is his function to bring happiness and beauty to mankind. His effort should result in the riches of his work: rich in the combination of materials, or scintillating with the miraculous beauties of proportion. Voices of vituperation have confounded simplicity with indigence! There are people unable to discern splendour in simplicity, just as there are people unable to create splendour by simplicity. A task rooted in *quality* faces the architect of the new age. Let youth be equipped by its teachers, let youth equip itself and through its initiative let an even more resplendent quality emerge.

I should like to say more about this question of quality which is the very essence of art and the means of so much pleasure. But I must admit that although the reasons for aesthetic enjoyment are infinitely real, our eyes, all too often, do not perceive them.

There are no architects at Vézelay, little town far removed from the railway line, where I am writing this book. The stately basilica, white inside, perforated by light stained-glass windows, is half Gothic, half Romanesque, on both sides of the transept. The sculpture proclaims an epic paean of the ages of grim struggle.

The town crowns an isolated spur, salient surrounded by valleys. The houses are of all periods of French history; some even date back as far as the Carolingians. They have watched the ages go by, for better or worse, opening up, closing in, modifying the town's objectives and its comforts, according to the time and fashions. The town seems only to have one street, which leads up to the terrace, held by high retaining walls, and planted with a quincunx of lime trees and rows of venerable chestnuts. From there one looks out over the Vallée de la Cure and its villages. Among all the roads which lead to the foot of the town, one stands out, in the form of a shield, and placed obliquely over the countryside: a long shield, and convex, made by a carpenter. Old walls, with their rounded turrets, still standing, surround it.

The scene has not changed since the Crusaders looked upon it, at the time of the second Crusade, when they came from many parts and assembled on the sloping fields, to the north, where St Bernard preached. On the 31st March, 1146, one hundred thousand horsemen covered the slopes which go down to Asquin. I saw the mist rise, this morning, because the sky was blue. It came through the open door, open on to the horizon between two long perpendicular ridges which face each other; the hills of Givry to the right, the crest of Rochignard to the left. It reached the foot of the cross which commemorates the preaching of St Bernard. It settled on the slopes of the spur of Vézelay. The cross and the gully through which it came exactly mark the line of the seven bright stars of Ursa Major or the Plough, and the clouds of mist suggest the hundred thousand horsemen. But they set out in the opposite direction, by the south, the poor on foot, the others on horses caparisoned with heraldic magnificence.

Forty-four years later, a new flow swept the hillside: Philippe-

Auguste and Richard Cœur-de-Lion met in the basilica to start on their Crusade.

I have now been living at Vézelay for nearly two months, going step by step in detestable weather, from door to door, from turret to turret, and more and more I am conscious of the harmony which links everything here. Grandeur is everywhere; everything is *right*, including the intention; everyone is in his right place; the basilica, the houses of the rich and of the poor. Such buildings are designed to serve mankind, not just objects turned out by the careless, indifferent as to their ends.

I am troubled again by the urgent need to revise our schools of architecture by helping them to renew their contact with substances, materials; with the simple, specific but always dignified needs of daily living; *with a human dimension*.

Schools cultivate the pomps of art. And pompous art soon becomes outmoded. (*L'art qui a des pompes est vite pompier!*) These schools have so successfully murdered architecture in all countries that I can well understand the painter Fernand Léger who, staggered by the sight of a piece of façade restored in the manner of old Amsterdam, blurted out quite crudely: 'How can such swine exist?'

Because the nineteenth century instituted schools of architecture which began to turn out *draughtsmen*, the teaching of architecture is too far divorced from the conditions of building; from the job itself. To-day the sane and robust traditions of the building trades have been almost swamped by the advent of machines and their related problems. These mount up from day to day until the vocation of architect has become little less than a menace. The time for an overhaul is more than ripe; in this field as in all others, where human capacities are subject to necessary limitations, both wisdom and reason cry out for the specialist. At Vézelay my steps lead me into interminable comparisons between the lessons here apparent and the lessons which ought to be given in our schools.

There are no architects at Vézelay to-day, and this has meant that the town is still intact, undamaged. One is penetrated by an agreeable sensation of harmony, rare in all conscience. And in the olden times, also, there were no architects at Vézelay, only builders. From father to son, or otherwise; but in any event from hand to hand, a continuous chain stretched over the upheavals of

styles and fashions, the fundamental reason of what charms us here: shades of feeling. One can stop in front of each house, very old or more recent, and go in; their architectural solutions are full of life, intelligent, economical, constructive, painstaking, sound; they are amiable and polite; architecturally speaking, they are courteous neighbours. The mason, the carpenter, contemplating some change in his own house, discovers next door a like-minded mason or carpenter accustomed to working with the same stones or woods. Papillon, the mason, drew from the same quarries and piled up his stones with a minute but purely natural precision. The carpenter Rousseau has been known to introduce a thin steel beam, but he seems to be courteously muttering 'Pardon'.

They were not faced with the monumental tasks of our time; nevertheless, here is a shed of corrugated lead, walls, and roof, placed up against an ancient building forming an ensemble of perfect elegance. Things have been cut to the dimensions of a shoulder, to the height of a raised arm, to a level on which the body could rest. Romanesque succeeded the Gothic and centuries of anonymity followed; the town had probably lost its lustre. Yes, because from 12,000 in the Middle Ages, the number of inhabitants has fallen to-day to 600. The old lattice windows were closed up, and next to these, having rearranged the distribution of rooms inside, were installed more practical square windows, with their wooden frames and cross-bars.

These simple homes convey an impression of warm and loyal hearts; how different from the impersonal and heartless nature of the rooms of our cities. But please note that I have no desire to set up those new Opéra Comique *décors* of lattice windows, carved covings, cast-iron gratings! What the centuries accomplished, by accumulation and incessant retouches, is fascinating, but the urgent tasks of to-day are something quite different.

In order to stabilise myself in architecture, I look at the clear and simple human expression, for instance, square windows, precise holes in the wall with their glazing and outlet and appendages of wood. And then, what about naked dormer windows and roofs, those age-old roofs without decorated ridge tiles, made of simple flat tiling, level with the gable, joined with mortar by means of a curve in profile and a graceful sweep on the side of the wall; such things are actuated by pure sensibility. And the

three steps in front of the door, and the dimensions of these, etc., matters which are neither more nor less than the stuff of architecture, that is to say, the art of building. The notion of truth, itself, is pertinent here, a proper appreciation of function, of the hierarchy of these, of the motives of their humility, of their conditions of *service*. To serve and not to show off; that brings us right into the contemporary problem. Modern society has allowed itself to be hoist upon a spread of false, pretentious values. The tax-collector now assesses on the basis of surface considerations. But here, in these excellent houses, are people who have dung on their wooden shoes, sound wits inside their heads, and perhaps a million francs in the bank.

Within this sound unity of diverse objects, the simple method of placing doors and windows on the face of the house is alone as varied, as unexpected, as charming, as the features on the faces of mankind. But have we still enough wisdom, enough initiative to examine the faces of men, in our daily lives? These houses are living creatures who are worthy, without exaggeration, of two, five, ten pages of a monograph giving their 'portrait' plans and design of each, one after the other, and without any exception. But what can we think of those millions of architectural foetus thrown all over France, in town or country, at the end of the nineteenth century and throughout at least a third of the twentieth; still-born fruits of the architectural schools, of their pomposity and penury?

One could hold the pupils of a large school breathless, during a springtime and summer here, initiate them into the gentle pleasures of discovery. The entire village, inside and out, would well repay a new census; might be studied, analysed, measured, rebuilt on paper. And the essence of architectural truth would develop through research, enthusiasm and wonder would grow in the hearts and minds of these future architects. From the farm to the village, large or small, from the larger village to the town, from North to South of France, from year to year, from one team to the next, the search will go on. Here, within a restricted circle, is reborn the traditional journey through France of the mediaeval comrades.¹⁹ There is here no intention, I repeat, to revive old *folklores*²⁰ which have no *raison d'être*, nor crafts and corpora-

¹⁹ *Compagnons*.

²⁰ Called in England 'Ye Olde' styles! (Tr.)

tions long since outmoded through the advance of modern technique. But we must unfetter our minds, allow the basic harmonies to shine, declare the unities, unlock our ingenuity, let the flowers of imagination open wide, and discover what the future holds, never forgetting the wonders of the past.

Architecture is debilitated from the very start by aesthetic uncertainty. They talk, they still dare to talk, they persist in this betrayal of the spirit, they talk of *styles*, of the varied available *styles*! Yes, to-day, faced by an immediate need, that of creating the proper vehicle for a given function, they still ask this preliminary question: Shall I apply (that is to say *superimpose*) this style or that, Louis XIV or Normandy, Romanesque or Basque, Provençal or Savoyard? Headlong plunge into the abyss, into the hell of prevarication.

My motor-car, my dreadnought, the shells I turn out at the factory, my bottle of *vin ordinaire*, my hunting-boots, my woollen waistcoat, my motor speedway, my aeroplane, my horse's harness, the diving-board of my swimming-bath, shall I design them in the *Pompadour* style or old Irish? Is such a preliminary question conceivable as stated either by a professor to his students, by the Municipal Council to its aediles, by the administration of the Beaux Arts to competitors for the Prix de Rome, by the *bourgeois* to his architect, by the workman to his building society, by the League of Nations to its Committee of Five, by their Commissars to the people of the U.S.S.R., by our midinettes to Lévitan? Not only is it conceivable, but it is an actual fact to-day!

But what does not yet exist is a formal prohibition by the Ministère de l'Education Nationale et des Beaux-Arts to create pastiche. To 'make *styles*'. No, that does not exist—not yet! A simple circular would do the trick; something dictated in a quarter of an hour and set out on one typewritten sheet. And the country would soar high. Where can we look for the clenched fist of our national will power?

A Minister, sitting in Colbert's arm-chair, said to me: 'If anybody brings me an estimate which allows for the use of modern materials, I kick him out!'

Why not draw from a hat the names of various styles? Some little girl from the elementary school might thus decide the style of the second era of the machine age.

We have a national institution of which we may well be proud,

the Ecole Polytechnique, which turns out the country's leading administrators. Together with mathematics as a means of mental training, they are also taught the *styles*. Edifices which subsequently arise all over our country bear eloquent witness to that fact. Viaducts and electric power houses, factories and warehouses. Anything can be done in concrete, even an architectural course badly conceived or badly digested: rows of red bricks with white mortar, both made of concrete, superimposed upon a construction of reinforced or moulded concrete; imitation cement arches hooked under the straight lintels of reinforced concrete or steel; keystones and keys of *significant* roofs in painted cement divided by false joints, in the colour preferred. And concrete balusters, oh yes, please, lots of balusters—to look 'Ritzy'—and they won't cost much. This is what they are up to in their fine school, these future leaders of enterprise, over the *four routes*! Somebody is sitting in the seat of authority and saying to them: 'Gentlemen, this is the job before you: just as between the years A.D. 1000 and 1300 our France was covered with a white mantle of churches (period in which courageous, daring, glorious architectural achievements piled up and surpassed each other, and aroused a world-wide enthusiasm, drawing to us in one spontaneous *élan* collaborators from all the arts; period of achievement which surpasses all else through the presence in each and every stone of an individual and collective soul)—even so, gentlemen, you will be called upon to make the country of to-morrow. You will be called upon to re-create the very face of our land: rearrangement of the countryside by means of agrarian reform; industrial cities with their impressive factories, their social service, their residential quarters; and then the ports—ships, piers, docks, and hangars, and the new routes of France and her Empire prepared for speed and made to run again through that magnificent territory so long abandoned to mortal boredom; and a new realm of Icarus floating in the limpid sky, peopled by different birds. . . .

'Gentlemen, a potential unity is in your hands: in your designs and your objectives, lie continuity, harmony, *the rule*. The world is dying for want of integrators ready to save us before it is too late. You will perform that integration. Each day, at your studies, you have mathematical confirmation, let that be your guiding star. We are bringing you up to love the "elegant

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solution". France's reputation for elegance is in your hands. From the shores of sea or ocean, to the summit of the towers of Notre Dame, over the clear-cut orbit of the *four routes*, let the spirit reign.

'You live in the machine age. What is the machine? A creation of superlative precision—faithful to the task of production, symbol of integrity since it repeats exactly, efficiently and tirelessly the same act; reassuring, because its practical realism is at all times confirmed by its fruits. The machine has its own ethical code: dependability, integrity, precision, obedience; the machine is a faithful servant. But its very perfection embodies another seed, a quality of spirit: an aesthetic. In connection with the machine, there is a momentary and essentially fleeting phase—a contemporary aesthetic: an order of beauty to which we respond, or could respond were we not crushed under the weight of conformity. But do not make of this moment of reality a *mystique*; that would be exaggeration. Consider only the following synthesis: here are your machines and here are halls of steel, concrete and glass in which they are suitably housed. Here are your centres of manufacture, ordered by reason itself, speaking with no uncertain voice: each and every one a child of reason and calculation and mathematics. Carry your analysis still further, still higher; pursue this relationship to its logical conclusion: machines, halls, factories, and then add houses and homes, palaces and administrative buildings, temples and thought. You will realise that no break is admissible, that a perfect continuity is the natural order. Elevate your vision and try to assess the unity of innumerable adventures²¹ in a century of building. This great symphony, it is you who will prepare it; you who are destined to carry the vast enterprise into effect. Do you feel this moral obligation weighing heavy on your thoughts and acts? The very face of our country will be your work; it is your responsibility.'

Unfortunately, that is not what they say! Such education, as to fundamental causes and means of integration, would be enough to regenerate our country. But in spite of a hundred years in which the Ecole Polytechnique has functioned, squalor still spreads its leprosy over all the land.

Yet it had seemed, in connection with a certain matter—

²¹ Used in the same sense as in Professor Whitehead's *Adventures in Thought*. (Tr.)

hydraulic—that from the situation itself light would spring. We were at the Congress of the C.I.A.M., at the Marathon dam, in Greece. A successful work displaying, in relation to the site, its masterly achievement. But we were at the summit, up against our only possible point of contact, the parapet. And that ignoble parapet was a *period* piece, and the whole impressive set-up of the dam was desecrated by it. Yes, a parapet is enough to do this, since in fact it crowns the whole. The turbines faithfully rotate, the dam dams, but the parapet imparts fatuity. And the mountains, and the pines, and those pine cones which roll under our feet, are witnesses to this anomaly; the pine cone, mathematically accurate, is itself a witness to the crime of disintegration, the lack of aesthetic unity.

Through mathematics, we are introduced to the fathomless splendours of proportion, carried to the very roots of architecture's speech. But often, alas, arithmetic alone is considered enough, in the works of the engineers, arithmetic which opens no doors but leaves both people and the world locked out. Pursuit of the higher algebraic equations predisposes the mind to a certain quality of reasoning. In such regions, one can excel, reducing all things to the quantity x and directing them to their perfect and inevitable end. But even this does not necessarily presuppose imagination.

And yet, the science of mathematics is the very womb of imagination, of the sublime beauties of proportion. The science of mathematics is the goddess of integration.

To visit a dam in course of construction gives one a feeling of exhilaration—it is an essentially modern concept of power. Technical publications show us startling pictures of great constructions in moulded concrete which, to the despair of all artists, must in due course be covered under torrents of water; show us the back of the dam, to which are fixed spirals of turbines, etc. There is nothing more lovely, vaster, nearer to those great laws of nature which we see reflected not only in fir cones and sea shells, but in the calix of a flower, the anatomy of an insect.

I once knew a master of industry who had hung in his waiting room, his offices and board-room, coloured diagrams, plans and cuttings, photographs of work in progress, and also of the finished work. What an abyss between them! Enterprise become bankrupt. Human endeavour, potentially sublime, had achieved

mere banality. The Parthenon, from the heights of the Acropolis, dominates the entire countryside—from Mount Hymettus to Pentelicus, from the estuary to the islands and the sea. It acts as a magnet, and overrides all points of the horizon. And yet it is not sixty feet high, nor more than a hundred feet wide; but it embodies the mathematical unity of the whole site, and every fibre of its crystal tunes in to the entire landscape like an echo.

What, then, was lacking in that contractor's work? Grandeur of intention; grandeur of the spirit. One missed the genius of a well-placed detail, of a line drawn out with authority from the amorphous, ill-tabulated mass. Proportion hinges on a hair's breadth and does not entail a cubic centimetre of extra material, nor any special increase in working costs. It hinges on a very personal mastery, on sensitive understanding of the play of plastic forces; it embraces the rocks and hillside which surround the work and the river which receives it. The Pyramid of Cheops, like these dams, was smooth and cut four-square, nothing more, but it spoke with authority! Feeling and enchantment are lacking in too much contemporary work, and the intuition which care alone can bring.

And yet a picture of that inspired and recently lost master, Auguste Choisy (engineer of Highways and Bridges), will remain in the hearts of architects. Auguste Choisy was a unique historian of architecture. He seized and understood the vital spark of the anatomy of a building. It was from the summit of Olympus that he had his plans engraved, that he measured and set out those works of man from which the great oratory of man bursts forth. He explained to us the essence of things, what lay in the seed, whether it would develop into oak or birch tree, into ear of corn or palm. By him, and through him, all is great: architecture rises through the interplay of right relationships into a symphony of rhythms.

What exhilaration one can experience in the work-yards of a dam, as one arrives at the foot of the construction, in a moment of full working activity, everything buzzing, hammering, the tearing of chains and crushers, the bursting of mines. The engineers are there, knights-errant of the enterprise, it is they who must grapple with the rocks, the mud, with the workers and the conundrum of the plan. But a real master is needed to drag out of this hive of stone (or of concrete or of iron) the work of art,

an old French term which has been used, surprisingly enough, to signify buildings by Vauban and the engineers of the Ponts-et-Chaussées, those almost anonymous, great architects of the nineteenth century—those who made the viaduct of Morlaix, Garabit, the bridges over the Rhône, the Ain and the Dordogne, the lovely aqueduct of la Vanne, near Sens, and our boldly designed highways.

I come back to the question of feeling, to that love of one's work, to the sensibility put into it which penetrates and gives a voice to the very stones themselves. If fate would allow, how willingly would I consecrate a summer term to giving a course of architecture at Vézelay. Not in the basilica, where we should be overwhelmed by all the matters discussed in this book (we might come there at night with a view to keeping ourselves in a state of high tension), but in that simple Vézelay of the cottage homes. If only to learn how to look at beautiful stone-work; the stones are Burgundian, and they reproduce the very feeling of the original quarries. Stones are quite different in other provinces of France, and the seeing eye can find miraculous symphonies: stones, hands and the watchful spirit of man; brilliant methods of cutting and joining, making just as severe demands of a man as the game of an individual footballer in his team. And we must also look at the hewing of stone in houses and cathedrals, clear-cut and lively.

Monsieur Auguste Fèvre, France's premier quarryman, recently confirmed to me, and with deep regret, the death of the stone-cutter's art. In the past, the edge-tool or scissors went into the material in such a manner that their struggle with the various degrees of hardness in the grain was reflected on the facing, making it look alive. But those façades in the manner of *Homais*,²² stuck on to our rich rent-producing boxes, have snuffed out the brilliance of stone-work, debasing it to the character of plaster or stucco. To make the stone live again by treating it as it should be treated would carry us up another road; to a better destination. Its present rôle of stealing the light by sticking itself in front of our new liberating skeletons of reinforced concrete and steel leaves much to be desired.

²² Flaubert's caricature of a *petit bourgeois*. (Tr.)

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One could write a fine work, stuffed full of pictures of cathedrals, chateaux and modern buildings, on 'Stone, the friend of man', in which one would show the age-old link between our hands and that crystal of the soil; showing also the marked changes which have come about in our method of using it. No longer is it the support of our floors and framework, but in the new town-planning, over the *four routes*, stone is everywhere taking its place again within reach of the hand of man, bound to the earth and the grass, appearing at the cuttings through the trees (looking out to the horizon), restored to its ancient function as a faithful servant of mankind.

Back home, in the winter, from Vézelay, Figeac, Caen, our architectural students, well nourished with substance and a proper cunning, will be equipped to work in concrete and steel. The curators of the Beaux Arts might print a monograph on Vézelay, first item of a collection to bear witness to the country's past, to the art of building houses. For a knowledge of such works, works performed with patience and loving care, issue also of their functional necessities, in a contribution to the values of the spirit. We have not acquired it; it cannot be acquired in the schools. The schools send their 'prix de Rome' scholars . . . to Rome!

French history has known gifted masons. They still exist; one finds them at the heart of villages, they live near the earth, are attuned to its music, their hands, their trowels, and their hammers once found employment there. But now . . .

The world has lost its craftsmen; the machine age has dispersed them. They will never come back; it would be an anachronism, a madness to wish to revive the crafts. What miscarriages of effort, what a loss of energy, how much production of well-meaning trash could be listed in connection with that obstinate determination to withstand a natural evolution.

The last survivors of the crafts are listless, in despair; they feel, they know they are no longer wanted. In my experience of old villages I have watched the life force grappling with death and decay, watched an old mason, a man of fifty, who could say: 'I am gradually giving up any attempt to work at all; for the last ten years, I have felt that there was no room for me; I bought some small machines, but I can't make it pay. I have tried to keep

up with the new methods, but it's not easy to make a concrete beam! Just look at this album, and the book with explanatory notes: 'Methods in the use of reinforced concrete, elementary calculations within the reach of every man.'

Within the reach of every man. I open the books; nothing but illustrations, ready-reckoning, formulae, annotated drafts. Poor fellow! And by their side, this pathetic witness: 'Arithmetic for advanced classes, geometry, some notions of algebra'. The pages are intact, those awkward fingers have not made much effort to turn them. And another witness, even more touching: 'Elementary course of French grammar. Theory, 1,134 exercises, 133 composition pieces, to meet official requirements.'

Those four books constituted his library; I repeat, they remained intact. You can well conceive the drama which has suddenly entered the narrow universe of this honest mason who, all his life, has been a useful member of the community. And who, one day since the last war, because the route Bayonne-Toulouse was covered with asphalt, because the motor-car and the motor-lorry brought a new manner of life in their wake, new tastes, new needs, suddenly felt himself swamped, wished to hold his head up and couldn't. He sadly packed those misleading new *machines* in the attic, together with his scaffolding, and apprenticed his son as a mechanic!

We cannot temporise with life. There is craftsmanship and there are craftsmen. But they are new and different. And the product of their effort is piling up in a winning direction, that of the future. It has no further connection with a far away past, with sentimental memories.

The industrial life of the machine age has thrown up a new type of craftsman, admirable gangs of capable men, meticulous, ingenious, careful, masters of the machine. You find them everywhere, in the towns and villages; their qualities of mind, their professional virtues are outstanding.

The great workshop of the modern age will really open up, some day: not in order to equip society with machines, but by means of those machines to equip it with radiant homes. And then what a torrent of technicians will descend upon us: inventors of all sorts, organisers, directors of the new pursuits! Some day, the schools of architecture will be obliged to prepare for their real task: to designate objectives, to develop a proper research

service, to direct this new capacity of production toward an architecture designed to satisfy the needs of man.

Here we are faced, then, with a specific task: reform of the architectural schools. Allow me to say that I understand youth. I have always refused to teach, my participation in 1911-12 in a progressive (advance guard) school having revealed that I was really not gifted in that direction. And yet, during the last fifteen years, nearly two hundred young men have passed through our studio in the Rue de Sèvres, contributing to our work and studies the inestimable support of their enthusiasm and their keenness to learn. Not once have I attempted to address them as a school-master; not once attempted to interfere with their ideas, important or trivial. I thought: youth is a dark horse, complex, uncertain, timid, and irresponsible, intuitive; that old saying is not so silly: 'He's young and he doesn't understand'. Whatever individual talent a young person might have, and that is rare in this domain of architecture and planning (on account of its complex synthesis, of its need for the appreciation of human values, of an enlightened assessment of human needs), youth must learn to wait. A poet may well be twenty years old, a virtuoso fifteen, but architecture, and planning to a great extent, must always mature slowly. And what are they doing, in the schools? They propose a thesis: plan for a temple, plan for a reception area, plans for the house of a collector, plan for a battle memorial. . . . A teacher goes round to criticise, every day or once a week or once a fortnight, as the case may be, and according to his own sense of his responsibilities. Twenty solutions are before his eyes, fruits of the sincere but obscure depths of the youthful mind, or perhaps from the obscure and insincere. Because there will always be the truthful and the cheats, the straightforward and the tricky. The smart ones will copy the 'boss's style', particularly if the diploma at the end of the journey is going to depend on good marks!

It is the master's duty to correct. But how could he, without being too unkind, cut headlong into that shaky and confused avowal which any youthful project must be, how could he, without wounding, conveying too deep a shock? He is left with the resource of 'epoch-making statements'. The abyss yawns at his feet; just clichés, just words, unworthy of so serious a matter as architecture, that rich orchestration of so many diverse elements;

to build solidly, economically, to organise within the plan and the section, to develop poetic qualities through the presence and interplay of volumes—both inside and out, through a unity, through what is seemly, etc.

My young people helped me to develop my own ideas: I have a theory, and I am older than they. If they came to me, bringing with them their capacity for work, it must have been because, on the whole, my ideas seemed to them to have value. I try to bring out my theory through the medium of their plans; I try to defend myself against the obstacles they put up; I try to lift their thought a bit higher. I suffer their birth-pangs with them, having their pencils in my hand; they are present at the inception of a work of architecture, something which will not lead me to Rome, to the Villa Médicis, but to the door of my client, who is waiting with specific estimates. Alternatively, it might lead me to face some committee, the city aediles, or perhaps even to the bar of public opinion. And in any of these cases, I shall be obliged to explain my methods, and my plans must be foolproof. The plans will go into the contractor's study and will be vetted on the basis of figures: vetted as to solidity, and as to working costs. Finally, one section of these plans will land up on the building site itself, and tracings will develop into volumes in space, the *idea* will come to fruition.

Once, at Rio de Janeiro, M. Capanema, Minister of National Education and of Public Health, being troubled by the controversy which had raged at the heart of his special Committee around the plans for the University City of Brazil, asked me how I should conceive a school of architecture. (In our plans for such a building we had placed the Faculty of Architecture slap in the midst of the workshops and laboratories of the engineers, we even had reserved a spot near the physicists for a section of the Faculty of Music (!), estimating that such activities as architecture and music in their early stages must be to some extent controlled by realities within the domain of physics.)

The answer to all this, of course, is to snatch architecture away from the drawing-board. Drawings are made within four walls, with docile implements; their lines impose forms which can be one of two types: the simple statement of an architectural idea ordering space and prescribing the right materials—an art form issuing from the directing brain, imagination made concrete and

evolving before the delighted eyes of the architect, skilful, exact, inspired; or alternatively we can be faced with merely a dazzling spread of engravings, illuminated manuscripts or chromos, crafty stage designs to bedazzle and distract—as much their author as the onlooker—from the real issues concerned.

Most often, noble architecture is expressed on paper by such austere means that an interior vision is needed to discover its full meaning; such a paper project becomes a confession of faith in the architect who knows exactly what he is going to do. Commercially, it has no value; as a means to a diploma, it has no value, either. If it is the uneducated masses, as at Moscow, who are to make their choice, it will be worse than valueless. On the other hand, the flattering deceptions of the ambitious architect's engravings will agreeably tickle the palate of the waiting client. Yes, drawing really is the most dangerous trap in the architectural field.

What is needed is to carry architecture towards the realities of its real function: towards materials and dimension. We must revise and tighten up both our method of posing problems and our methods of solution. Stone, concrete, steel, wood have each its own characteristics reacting very differently under loads and stresses, and drawings express them in a not always trustworthy manner. The distinguished solution calls for economy of effort, and between this austerity and a brilliant result, it is method alone that will count.

All human enterprise swings between two poles: on the one hand, thought, incentive, aim; on the other, materials and the means of expression. Certain individuals pull it off. The modern world is equipped to know of their successes; to-day, everything gets known by means of those printed sheets which plaster the earth to its remotest corners. *Information* (publicity, if you will) plays a master rôle. It would seem, then, that those who wish to learn at the best sources could not do better than put themselves in the hands of the best men. And that, of course, is the best kind of school: the studio of any of those masters whom *youth has chosen*. Do you realise the immense difference? Such masters have been chosen by the young; they have not been nominated by officials in the Ministries. The needed reform would thus be accomplished.

It goes without saying that the body of doctrine—the exact

science—will be taught, as always in qualified institutions; but exact sciences are only one part of architecture. When the Faculty of Exact Sciences, at Buenos Aires, incarcerates young architects, it can only mean that its own title is inaccurate, or, alternatively, that they will be badly taught. Because thought, incentive, aim, are by no means exact sciences!

I will again explain my reform and place it within its proper background, which is the second lap of the machine age: those masters chosen by youth will know how to cope with the *four routes*. And art, real art, will flourish on the *four routes*, the art of building all things. The masters will be many and different, because both architecture and planning have a variety of ramifications. The masters, then, will be out and about, not tied up inside a school, and they will only accept as collaborators those whom they approve. And if some of the pupils are turned down, it will just indicate a timely warning to the effect that the young man concerned was not designed to be an architect. Masters thus elected are no longer irremovable. Life does not have much use for the *immortals* (that is proved every day). The favour the new masters enjoy will be the result of their individual merits. And should one forfeit his claim to consideration, his pupils will leave him, no less. If, on the other hand, his studio is swamped by a rush of pupils? That will allow for selection. And attention thus drawn to him in the eyes of the public, it would only be natural if commissions flowed in. And with his cohort of friendly and enthusiastic helpers, he will be armed to cope with those over-heads which so often, in practice, make extensive research impossible: with all his young scholars, he will be able to pursue his research to its farthest limit. It is he, the master, who will create prototypes, models. Such models are the result of very careful study, in all their details, without regard for what experiment might cost. They impress by their very perfection and establish a standard, they play their part in consolidating the *style* of our period. They constitute an objective contribution, to some extent, a social gesture. They are the equivalent, within their sphere, of a good communal or national administration. The system here prescribed is no other than the old, traditional workshop. It links us once more with those ages which, before the schools came into being, created real architecture. And diplomas? They will be issued on proof of exact, scientific knowledge. There

can be no diploma in relation to thought, incentive, aim. Will these not be diplomas for engineers instead of architects? What matter! Already in several countries, architects are awarded the title of engineer. A scale of technique will be established, within the necessary limitations. It might be objected that one might as well keep the present schools which, more or less, fulfil the same requirements. Those schools have murdered architecture. Our new scheme, on the contrary, will bring it to life: the pupils have chosen their masters. A renewal of authority will issue constantly from the base, through the dynamics of youth, of youthful opinion which is always new. Of youth, which has not yet been side-tracked by the struggle for existence.

In the course of fifteen years, I have had occasion to judge the standard of teaching in the schools of Europe, America, and even of Asia. The young people who came to work with me were rather the pick, as to quality; they invariably came armed with the necessary academic honours; they often had won scholarships, and most significant of all, they were people who had decided upon that all-important step: to travel, in order to see and to know.

To begin with the Japanese. On the plan of one of our large public halls, it was necessary to draw some fourteen thousand seats—a circle inked-in by compass indicating each seat. Just the work for a Japanese! He made a superb job of it, and of many another also, and finished up, after four years, designing the Japanese Pavilion at the Paris Exhibition of 1937.²³ He, and all his compatriots who preceded him, were actuated by the same driving will power; they have uniquely sensitive hands; their politeness amounts almost to solemnity. They seem able to follow a line of continuity, but sometimes fall into a hole; their ingenious assimilation of Western ideas nevertheless still leaves them Orientals, which is all to the good. They have great integrity of technique. They first appear, sweating with fright, with presents in both hands: generally a book, or engravings of their national art. To one of them, turning over pictures of their perfect traditional tea-houses, I exclaimed: 'Why are you coming to acquire our barbarities, you who once upon a time made such perfect poems of your houses?'

To the Swiss from the Zurich Polytechnic, I often say: 'Just

²³ But not the interior decoration, alas!

drop in at the herbalist's, and buy some wings'. There are none more stubborn, or more loyal. Their drawing has integrity but no elegance. The Czechs, the Yugoslavs, on the other hand, have an impeccable drawing technique. I admire them, never, myself, having been either able or willing to draw 'like an angel'! They have in that respect exacting masters. But . . . but their architectural baggage—their aesthetic philosophy, that spirit which ought to imbue creations in space, the setting up of walls, methods of circulation clear and varied—where are they? No, they have not been told much about architecture, they are draughtsmen.

The Russians, also, have some solid professional qualities, strong drawing and considerable imagination. Scandinavians, Danes and Swedes stick close to domestic problems; they work with gusto, and contribute a variety of pleasing touches, all very sincere. No desire among them, any more than with the Dutch, to bedazzle us by transforming a shelter into a Trianon. Ah, those Dutch! How meticulous they are, too! Those who have torn themselves away from the gables and bell-turrets of the Renaissance, here they are glued to the glass frame of their immense greenhouses in which are cultivated those fabulous bunches of hot-house grapes designed for princely tables, immense all-glass conservatories which one sees from the air.

To tell the truth, all these people are overwhelmingly in earnest, and the herbalist—should he pass their way—would certainly sell out his stock of wings. The Americans are well satisfied with their basically academic point of view; they come and sniff the air of a new age because perhaps some day it might become the fashion; they even describe it as 'a new style'! What a screen the skyscrapers make!

And then the Mediterranean! Spain, Greece (the Italians cannot come out from under their authoritarian régime, but they are informed), and Uruguay, and Brazil and Chile, and the Argentine. They speak French, with a different accent, naturally; and they have much more sun than we have. Light relieves form, heightens excitement; everything here is more lively. (There was a time—and it still is—when the excitement connected with *form* was delirious, from the Casino of Monte Carlo to buildings in the tropics or Rio de la Plata).

All this is concerned with exceptional and gifted individuals who cut across racial, national characteristics (I prefer to say

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national rather than racial, because national implies a Ministry of Beaux Arts, influence or control by officialdom—Academies, Institutes).

I was always curious about those who might come from the Ecole des Beaux Arts of Paris. They were never many. Those who did come were the . . . heretics. They, one must admit, do know something about architecture—relations in space evoked by a stroke, set in brilliant relief, but the underlying scheme is often extremely doubtful.

At the Beaux Arts they knead their architecture, that substance rising to the heavens, the object of which is to convey a message to you. And the result is those ostentatious railway stations, those palaces, built for Exhibition purposes, or for foreign consumption, very characteristic—characteristic of a variety of questionable matters: academic atmosphere; shades of a majestic tradition: Luxor and the Châteaux of the Loire, and Rome. Yes, Rome, and the revolting apartment houses, the H.B.M. for instance, which have resulted. Nobody talks about the needs of man there, but about architecture: architecture is something to be stuck up and looked at. Is there, then, some purely objective science of architecture, since it is accepted that man has no rôle to play? Do I appear to condemn? Whom should I condemn? The pupils are passionate workers, real lovers of those beautiful plans (not designed for humans), and of those sparkling washes put on with indian ink. Summum of capacity. With a bit of black one shows up his idea, that idea which is sister (or is it?) of the more obscure *précis*.

The Americans love all that. They are fanatical admirers of the Beaux Arts. At New York, they have enshrined its pompous traditions in a very smart club, And then, apart from sentimental claims—for Paris has a sentimental claim for an American, and the courtyards and gardens of the Beaux Arts are lovely, and the Seine, too, and the guys are friendly, and one can sing as one works. Apart from that, America, of course, will see to it that they forget the Beaux Arts, because they will have to build within the violent conditions prevailing over there, which will automatically transform them.

The students of other countries have concentrated studiously on methods of construction. I say 'studiously' and I say 'methods' but I do not say anything about the art of building! At the Beaux

Arts, let's frankly admit it, the art of building comes under the heading of the learned and somewhat dull sections of the library; it neither occupies nor preoccupies anybody. And that's a pity. Architecture has fallen very low. Finally we always get back to this peculiar situation: at the Beaux Arts, men do not count, and we poor creatures, the eventual householders, we who had been tempted to think that the architect's function was to prepare homes which would become centres of happiness, perhaps even centres of thought, well, we don't count either.

The home, the home of the New Age, the very essence of all that signifies a new era of civilisation, is a matter of complete indifference ; let's admit it, to those who control the ideological orientation of the School. I am by no means surprised to have received so many confessions of anxiety, often conveying real anguish, from young people who were genuinely attached to their art.

If Auguste Choisy's book, *History of Architecture*, had been printed on the presses of the school, one might know that France marches on. Better still, that France, extricating herself from these last (shall I write decades or centuries?) finds once more the vital spark of architecture which remains the same throughout the ages, and which has always been (in the Americas, as in Asia, Africa and Europe) the means of equipping any civilisation with the objects of daily use, within the splendour of a general harmony or integration.

The vicious circle within which French architecture is now bound will some day burst open, will begin to teem with professional activity, to use our widespread latent energies, all gathered together in a common effort to produce objects desirable in themselves, and for which a standard will some day be fixed.

The Lesson of the Gondola Art and the Contemporary Masses

At Venice, in 1934, as a delegate to the Art Conferences organised at the Ducal Palace by the Institut International de Coopération Intellectuelle, I had assisted for a whole day at a difficult and complex discussion, which seemed to me to have no solution. The subject was: Possible contacts between Art and the Masses in our Time. Towards 5 p.m., the organiser took me by the

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shoulder and pushed me into that horseshoe circle from which the delegates speak . . . it was up to me! I love the arts: painting and sculpture; I myself paint; so a wave of feeling rises in me; let's try to get this issue into its right perspective.

'Many people to-day wish to make a liaison between the masses and contemporary art manifestations, forgetting that that would require them to bypass the normal stages of evolution. The masses seem to me to be destined not so much to participation in the latest aesthetic achievements, as to a clearly defined activity of the spirit which one might call their own.

'Let us examine the history of the popular arts: the people in the Middle Ages and at the time of the Renaissance, obliged by certain social obligations to visit the city or the château—I am speaking now of the peasants—were not equipped to understand the spirit, the *rule*, and subtle proportion of major works of architecture, but they did experience enjoyment and even discovered a certain *flowering* in the architectural field. They were content, of course, to peck at it, to pilfer here and there a collection of superficial and unrelated elements which they subsequently vandalised, dislocated, got entirely out of proportion, chipped and hacked extravagantly, depriving them of their proper harmony—but they returned from their outings satisfied and gorged with stolen fruits. And once this massacre accomplished, the man of the people reconstituted his own world and even achieved a certain integration: in this way developed a variety of period pieces of considerable charm, even admirable in their way. Let us then not count upon, nor even hope for, unanimous approval when highly esoteric products are concerned. That would be a fallacy.

'But I believe in a renaissance. The birth of a new machine age. After a cycle of a hundred years *the first span of the machine age* (1830–1930) composed of scientific achievement, of profound psychological upheavals, I note the opening of a second span and this one dedicated to harmony—to a perfect integration of revolutionary modern elements with the age-old fundamental needs and desires of man.

'The issue widens out; the renaissance of which we are now talking will be for all mankind, no longer for a clique, for a small section of society, for "the artist". It is life itself which is here involved; taking possession of our activities and directing us by means of invincible forces—natural and profound—towards a

universally accepted law; towards a generally recognised outlook, a complete integration. The whole social structure will be involved, through labour and its colossal production. Society, as a whole will benefit and learn to enjoy the creations of the mind, learn to appreciate a new *ethic* and a new *aesthetic*, arising out of a natural beauty permeating objects of daily use when these have ceased to be the jealously guarded prerogative of an isolated class.

‘And to make my meaning more clear, I shall talk of Venice. Venice is the symbol of a perfect synthesis of a unique phenomenon, of preservation, of harmony, of absolute purity expressing a well-integrated civilisation. It has come down to us intact for this simple reason: Venice is built upon the water—and the water not having changed, Venice has also been stable; has remained intact. To those who wish to assess such a finished flowering, the perfection of a system based upon sound values, Venice brings the conclusive answer.

‘What man of genius first thought of making of this promising village a mistress city? That was a superlative concept of town-planning; a prophetic vision. The first requirement was for practical equipment. And what came first? *Transport*, no less. Transport stands in the forefront of Venetian preoccupations, because water is everywhere, a natural protection but also a static force; and the need is for men to live and move on the water, not at exceptional moments but in all the thousand and one gestures of their daily lives. And so gradually one of those natural developments which are so valuable from the standpoint of art came to life—art is placing things in their proper order, in the right place, in the right relationships, and by means of this natural evolution life spread out over the lagoon. A city is born and a population, possessed of a perfect equipment, an equipment so perfect that it has remained efficient even in this period when none of the world’s cities has been able to survive the explosive results of the machine. My admiration for Venice is not restricted to palaces. I see Venice from the moment of my arrival at the railway terminus: the stairway which takes me down to the water; and then the gondola into which I climb. And first of all I am struck not so much by the romantic aspect of the gondola as by its absolute efficiency, its rational perfection. Throughout the ages we have known this Venice, successive generations of

painters and engravers have portrayed her, and we ask ourselves by what miracle the gondola has never changed its form. Has it not then been subject to the evolution of styles, to the whims of fashion? With the exception of certain decorative elements—quite unimportant—as for instance a few flat carvings which neither adorn nor disfigure it, or a few small allegorical bronzes, which are only details, the gondola itself as a biological entity, the very embodiment of equilibrium, not unlike the modern plane in its mechanical perfection, has never changed.

‘The type is permanent, proof of that inevitability of cause and effect which appears in all objects based on fundamental human needs, in all cases where human values have been respected.

‘We are considering Art, great painters, great sculptors, that violent interpenetration of our own white civilisation by primitive art—I mean negro art, that of the tropics or the desert. These have served a very useful purpose. They have reconditioned our eyes; a return to the outlook of primitive art has made it possible for us now to appraise all around us (the gondolas themselves, the landing stages) with a fresh and seeing eye. Under the influence of our recent experience in those fields our surroundings have taken on a new plastic significance, they convey something of the beauty so earnestly sought to-day by all disinterested people; by people of goodwill. One finds here, on the canals of Venice, that great art known as *abstract*, which, by the way, is a ridiculous term. The gondolas contribute (through each of their separate elements, and by the cunning of their related forms) striking and harmonious compositions, as moving as great statuary.

‘If what I am saying surprises you, just try it out and observe, for instance, the rowlock for the oar, observe the position of the gondolier; note the leaning—almost alarming angle of the gondola; such an angle is inevitable because the gondolier has only one oar, which makes it necessary for the gondola to be permanently on the verge of capsizing in order to go straight at all. Then look at the placing of the seat at an angle, and the high-pitched counter-weight of steel; regard these things as a plastic entity: you are faced with beauty which has an entirely *mechanical* origin. I am not using that word in order to conform with the snobbery of the hour, but because both clarity and the fundamental reality of things require it. And for your final delight,

please note that the longitudinal axle of the gondola is not straight; it is curved; the gondola is twisted. It is twisted because, having only one oar, in order to go straight to its objective it must proceed askew. And here you face an exhilarating example of beauty because all this is the outcome of physics and dynamics, but nevertheless that plastic quality which delights you is the essence of great art. And from the gondola, I go on to the little ports into which it goes; to those porticoes which open to receive it in house or palace; to bridges which one crosses and which all have a dimension commensurate with a strictly human scale, and with that of this unique means of transport. These bridges are not like the Rialto, which is perhaps very beautiful—or perhaps not—these innumerable little bridges are like jewel cases ready to receive their content: a gondola and a gondolier standing upright. There is an established unity. The stairways on to which one steps are examples of the same fine calculation, etc., etc.

‘And Venice is the only place in the modern world, apart from a few country spots, which has escaped the curse of the railroad, where one finds—due entirely to the lay-out of the waters—that harmonious intimacy which the works of man are able to perpetuate when no revolutionary phenomenon arises to destroy them.

‘Such adverse phenomena, which we have not yet learnt to control, had erupted everywhere else at the coming of the railroad. I affirm categorically that as soon as the first rail was laid, a new civilisation was born, that age of the machine which started by destroying everything. But it also stimulated certain new activities of the spirit which in turn produced new means of construction, a new integration. And the new harmony, of which I shall have more to say later, was something quite other than those which had preceded it in history.

‘And in this Venice, so harmoniously equipped, look also at the street, the Venetian street with its unique dimension. In this street, we are on our feet, masters of the soil, lords of the earth. We are quiet, our ears are at peace, we can walk according to our whims, no danger threatens us, this *the street without wheels*! At Rome, recently, I publicly pleaded for the dignity, the rights of the pedestrian; I demanded that all cities of the world should put an end to the scandal of modern streets menaced by their traffic

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as by a sword, living under a perpetual threat of death. The Venetian is lord of the ground in his city, he is the master pedestrian. Have you ever noticed the self-assured sprightliness, the feeling of pride which the average inhabitant shows in his *calle*, on the *places*, on his famous Sclavonian quay?

'Streets, pedestrians and the lay-out of the waters are incorporated in a thrilling symphony. And as the result of our discussions here, we shall perhaps now be able to appreciate the subtlest nuances of that ensemble. We can enjoy them, because our eyes function at a height of 1 metre 60 from the ground. The eye is the only instrument with which we measure and assess. What value has the gigantic, in comparison with this, what beauty is there in things which have lost the value of proportion? In Venice nothing is out of proportion, thanks to the dominating plan of the waters. Land streets, and streets of water: a perfect combination. And the houses, another subject of delight. I concede that men who have tasted the exhilaration of modern life might no longer be willing to live in this Venice built to the rhythm of the human footstep; the pace seems too slow, but looking at it all from the angle of an era of moderate speed, I can distinguish everywhere the loving care which guided every gesture when these houses were built. I am not talking of the palaces. What do they matter to me? But home upon home has been built, house upon house with gardens wherever a tiny fragment might be reserved of that super-rare commodity, the earth. Here again, all is seemingly, well proportioned, bespeaking the human touch. Go into the city, into its remotest corners: you will realise that in this city which symbolises the absolute perfection of town-planning, what stands out is the universal expression of a loving care.

'And that is the fundamental reason why the world talks of Venice, and must do so. The third factor of town-planning, dominating even the problems of transport and housing, is that intervention of *the spirit* which transmutes inert materials into the living palpitating city. A civic consciousness burst into being in Venice, as perhaps nowhere else in Western civilisation. The civic conscience has ordered everything there; developed an enlightened planning, raised palaces of communal utility; even statuary and painting came under its aegis; it instilled a quality of beauty into all the objects of daily use. I have shown you to

what lengths this decorative art (lamentable term!) could go. And I should like further to bring to your notice that this omnipresent art is by no means frivolous, but on the contrary is inextricably attached to the utilities of daily life. The fact that the gondola is both the purest and most typical *object* in Venice surely authorises us to laugh at the jeremiads with which we are plagued to-day about the standardisation of modern life. The gondola is a *standardised* object—indeed much more ‘standardised’ than an automobile. The gondola has not changed for centuries and by that very fact has achieved something of the perfection revealed in Greek temples; there was only one type of temple; and the creative forces could thus be concentrated upon quality only. Town-planning (transport and houses) and the Venetian concept of civic responsibility have absorbed the entire population in an ensemble—an enthusiastic and fruitful collaboration, a handling of every object *con amore*.

‘And the result has been not only the pleasure inherent in collective creative work, but also a blessing of the enterprise itself. Look at the Venetians: five to ten centuries have gone by and they are happy and proud in their streets to-day. But now let us leave Venice and turn to contemporary realities.

‘We face the first fruits of industrial civilisation (the machine age) rooted in mathematics and science. The picture is disquieting, alarming—a complete cacophony. The machine has been the cause of every evil. But before we begin to talk of the constructive effort required for a new civilisation, we must reaffirm that despite its inherent unity or integration, this civilisation must nevertheless remain subject to certain essential factors, common to all mankind: the sun, for instance, is, first and foremost, the master.

‘According to the angle from which the sun looks down, men are different. And then geography and topography inevitably step in and influence our undertakings to some extent. Finally, racial considerations and local customs must be taken into account. Such factors now furnish values of universal application; the breaking down of barriers through greater facilities of transport has opened a way.

‘M. Focillon has told us (in any event that is how I interpret him): “What might give a new direction to art, or at least bring about the necessary volte-face, is the city; the building of cities.” And he nobly adds: “The city with its temples and its palaces.”

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But I am impelled to reply to M. Focillon: "Dear Sir, I beg you not to forget the houses." Actually, for me, the first requirement of a city is its houses; and the temples and palaces come after that. And having thus reshuffled the relative importance of the objects of our solicitude, you can more readily understand why it is that contemporary society (the masses) does not trouble to acquire the type of art designed to satisfy the higher reaches of the spirit. It is because for such a culmination the base itself is lacking: the basis of all society, the home. The habitations of the world's cities are too shameful; they have been sacrificed to the profit motive; nothing has yet emerged which is strong enough to offset the lure of financial gain with the possible exception of our present violent crisis which may bring home the lesson of the worthlessness of money and the vanity of its pursuit. We need to revive the conscience of humanity; something which will get us headed (hearts and minds) in new directions: towards the true, the real, the tangible; towards something which will be the outcome of our own conscious effort, and no longer leave us victim to the brutal insensibility, the savage irresponsibility of mere finance. You will not find it unreasonable then that I should consider the contemporary conscience as a key issue in relation to art. And if other more important values—poetic apprehension for instance, of sensibility—finally succeed in relegating money to its proper sphere, making it follow after and not precede the creative effort, then the march of events thus redirected will perhaps of itself force those who are responsible for our destinies to create cities compatible with the requirements of our time; a training ground for the *Zeitgeist* or spirit of the age.

'In this connection, I have been privileged to participate in a series of planning experiments in the great capitals: Stockholm, Antwerp, Moscow, Paris, Buenos Aires, Algiers. These cities are not entirely conscious—they are living in complete ignorance of what a modern civilisation might give them. They must be awakened from their torpor, from their supine abdication of all their rights and potentialities. And since it is always a good plan to give things and situations their exact definition, I thought: "The city is the result of a collective effort which ought to bring to every individual the *essentials of happiness*. And basic happiness is not difficult to define."

'A long time ago, I jumped in where angels fear to tread. I

threw into the confused discussion of styles, fashions, snobberies, this argument which was a knock-out: "*The house is a machine for living.*" A thousand staves have been produced to beat me for having dared that utterance. But when I say "living" I am not talking of mere material requirements only. I admit certain important extensions which must crown the edifice of man's daily needs. To be able to *think*, or meditate, after the day's work is essential. But in order to become a centre of creative thought, the home must take on an absolutely new character. And that necessitates for its realisation a change in the entire lay-out of the city, a new arrangement of transport, a new and daring concept of space relationships, a new method of construction for human habitation. And here I must remind you again of Venice, and especially of the gondola. These great tasks must be wrested from the hands of moribund corporations. They must be tackled by modern men of genius who would create a series of magnificent machines efficiently as the work of engineers. And, in addition, such machines having been submitted to a certain aesthetic discipline, would also embody the divine quality of proportion—embody it just as successfully as that hitherto much vaunted handwork. I cannot admit the failure of either, the hand or the machine: *and there is no reason for the precision of the machine to preclude beauty.*

'It is not sufficiently realised to what extent architecture ties up with every other element of reconstruction required by this machine age; how the influence of the *Zeitgeist* can permeate even a public discourse; and especially books. For the imprint of the *Zeitgeist* can and will become obvious and general at a given moment, when the spiritual currents are sufficiently strong to come to a head.

'And I am forced to this conclusion: art itself is the foundation of that great social metamorphosis which has already begun. If we persist for instance in such outmoded architectural methods as the use of heavy walls, no longer a practical requirement to-day, we can never hope to tackle successfully the problem of the modern city. All that is required is to develop "interiors" of such a quality as will inspire in their inhabitants not only serenity, but a sound dynamic for living: a proper urge to action.

'Such homes will be a refuge from noise and confusion. They will admit floods of sunlight since modern technique has obviated

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the old-fashioned stone façade perforated with holes. (It has brought a glass façade to our houses, a landscape of sky and verdure—both these amenities have now become accessible through the superior technical and economic methods of modern town-planning.)

‘Our houses will have a completely new interior arrangement; both the lay-out and equipment of rooms will be designed to ensure a maximum of working efficiency (economy of effort or whatever) combined with a maximum of those more personal amenities designed to protect the sanctity of human relationships. And last but not least they will ensure all this within the reasonable limitations of a sound economy (sound for to-day). The world has never been really rich, and must not build and has never built otherwise than with strict economy. I know that within the nineteenth century, in spite of the principle of the “Rights of Man”, men permitted themselves to build with spendthrift munificence in honour of the few, and such expenditure was by no means limited to procuring the ordinary equipment necessary to average human happiness. But when heavy industry which has foundered in the sterile production of rubbish gets into its new and proper stride *the manufacture of objects of real utility*, i.e., the home; when it has once learnt its proper collaboration with the building trades, it will produce in our factories those innumerable marvels which are in fact its own *raison d’être*, and we shall have achieved the perfect dwelling. Let me illustrate this thesis by a striking example: the motor-car, in which all men delight, well made and relatively inexpensive. I feel that one cannot overstress this fact; that if the methods now operative in the production of motor-cars were applied to the building industry, to town-planning, architecture and the equipment of houses—contemporary society would possess the perfect home. And that home would be as delightful, as good to look at, as streamlined, as efficient, and as pleasing as a plane or a car.

‘And where, you ask me, does art come in—that Art (with a capital A) about which you were talking? Well, Venice taught us, did it not, that the mere fact of its lay-out on the waters has created an ensemble of great efficiency and perfection. And can you discover art in this Venice? (I am not talking of the Belle Arte Academy, or of the painted walls and ceilings of the Ducal Palaces, or of the rather doubtful palaces of the second Renaissance).

Is there art, I ask you, in this ordinary Venice of the *calle* (streets) and the waters?

‘Enthusiastically, you answer “yes”. And who do you think was responsible for the creation of this art? Why the crowd, of course, everybody, all the crafts and unions, a whole succession of techniques throughout the ages. Every man in the course of history has helped to make Venice—even before the “great” artists of the second Renaissance were born. And would Venice exist without those great artists? Yes, it would certainly exist in its perfection—in our hearts. What we need to-day are people imbued with enough faith, enough strength of character to persevere—even in a world whose values have been killed by money—to persevere in preparing the necessary plans for the future, in every domain. Such plans will one day become the common patrimony. And the day in which they stand forth so clear and overwhelming that all men will be able to discern the century’s inevitable trend, the working man in the factory will come to realise that all this vitally affects his own home. And when, for instance, somewhere in the world there springs up the first group of three to four thousand habitations turned out by those same machines with which he is now making other people’s cars, he will suddenly understand that society has at last grasped its new and proper objectives. And then an old tradition will be revived, the faculty which has long lain in abeyance, the loving care which should be common to all the works of man. And that is where art will blossom again. Indeed, I can perceive no better method of producing art than by such an attitude towards work as I have suggested. We shall then no longer need to seek in solemn assembly, as here, methods by which to draw the masses to an understanding of the more esoteric lyric and plastic arts: to an understanding of cubism, futurism, expressionism, constructivism, and of every other “ism” yet to come.

‘From a solid base of enthusiastic collective achievement, art in its diverse forms and categories will emerge. I myself believe in the so-called higher arts, and I do not believe that these are within the reach of every man. But I am shattered by the picture of contemporary society: of the sullen masses without interest in anything that they are doing—hating the work of their hands.’¹⁴

¹⁴ Stenographic report. First published in *Entretiens sur l'Art*. Institut International de Coopération Intellectuelle. Paris, 1935.

Ancient Greece had already given us the picture of a well-balanced society; the Middle Ages also, and Venice now confirms a perfect integration. But Venice is not the only means of acquiring such lessons. At Paris, Eiffel built his tower. Its forms were originally the discovery of Koechlin, in the course of a lesson on anatomy in an amphitheatre at the University of Zurich. Its forms originated in the bony fibres of a femur which had been sawn lengthwise—its curves are of a type acknowledged as having the greatest power of resistance: mathematical curves. We no longer need Vignole. How is it that the Minister of Education and Beaux Arts has not long since turned Vignole out of the 'School'? One of the 'School's' professors said to me: 'Like you, I am in favour of discipline; and so I have made a rule of insisting that my pupils start to copy first a Doric capital because it's easy; second, an Ionian capital because it is more difficult; third a Corinthian capital because it is very difficult' (*sic*). That is how darkness and stagnation has fallen upon the schools.

Why hasn't the Ministry forbidden in the Schools this instruction based on the three orders, with their three capitals? Auguste Perret, having walked out on the Beaux Arts, was declaring about 1905, 'I am working with reinforced concrete', and his *confrères* were trying to find out whether he had any legal right to call himself an architect.

Freyssinet built the hangars at Orly; they have never housed a Zeppelin; but they are internationally recognised as an architectural achievement.

It was an engineer who designed the hull of the *Normandie*: that marvel admired all over the world—and we do not even know his name. And now the Paris of to-day is still to build, and we have a right to do this, based on the Paris of yesterday and the day before yesterday—and even before that. Art is something immanent, born of life itself, of the fingers of man, from the brains of men and from the machines which have become a kind of prodigious extension of the limbs of man.

Modern industry has not yet started, industry with its connecting rods and its engineers. The word engineer itself is not far removed from 'ingenious'. Would it then be so disgraceful to call the ingenious to our aid?

VIII ADMINISTRATION

INVENTORS were not born to be administrators. We must be left alone in the heat of our creative effort, to produce without respite. Use our capacities: don't risk annulling them by attempting to use us in the wrong way. Avoid confusion, don't ask us to do something for which we are temperamentally unfitted; be objective.

To be an administrator requires qualities of sangfroid; that battle is not waged within the scope of technique with its infinite ramifications. Administration is a question of strategy, and elements of a different order enter into play. A technical plan is a complete entity; it can only express a whole, a fruit with its skin, its seeds; it can only blossom, some day, into a normal plant, the roots at the bottom and the flower at the top—and not vice versa. It matters little whether the realisation of the plan begins by means of an unexpected detail—that is the effect of some passing incident (perhaps even paradoxical), but when it is finished the plan will nevertheless emerge in its totality.

Once I heard a man of considerable standing, famous for the successful realisation of many a vast enterprise, say, 'I don't believe in big plans; I only believe in small and strictly localised execution; that is the lesson which life has taught me; the sum total of my professional experience'. This statement, I may add, was aimed at me because I cannot trace a road, a street, or a fragment of either without the assurance that such road or street will some time—later—lead somewhere, open out into the beyond. I cannot place a building without . . . I can reach no decision about markets and factories, or barracks, without . . .

This man is a great administrator, I am a technician. It is he who announces—and in whose hands the decision lies—that for the moment only a section of the street can be put in work. He knows this, for his own reasons, and he assumes full responsibility, for does not his team include that noble courser of finance, the steed of time, the bullock of public opinion and the devil of

politics. These are the elements which inspire his actions. I, the technician, hold my peace; I let him carry on; even if I acquiesced what would it matter? I *know* that some day that street will have an outlet.

But by all the rules of give and take, the administrator must not abuse his powers. The management of an enterprise often leads a man into some understanding of its structure, and I would not deny that such a man is often in a position to offer good advice. Furthermore, the technician—the good one—is essentially supple, resourceful, capable of jumping one way or the other, of moving his rifle from one shoulder to the other as easily as he changes his shirt, capable of forging to the right so as not to get blocked on the left; he is like water, fluid, but impossible to stem, he will always find a way, always arrive where he wishes to go; he is ingenuity incarnate. And he is open to wise suggestions. But the pencil must be left in his hand. The appalling cacophony apparent in many important works to-day often proceeds from the sketch of some director scribbled on the blotter in his board-room and which he subsequently thought good to enforce, since administrators are not always completely exempt from vanity.

Administrators, your task is to organise what is already in existence; it is yours to assemble, to align within a framework of time and space the things which do concern you; but you mustn't aspire to omniscience.

The reader might find it difficult to believe the complexity of interests which flood into any town-planning scheme. Those responsible—mayors, governors, councillors—get an earful on every side. They find themselves at the bottom of a funnel rather than on the summit of a cone; everything and everyone assails them, harasses and weighs them down. For one must state again at this point that two types of planning are now in furious opposition; antagonistic, irreconcilable. The one admits of 'putting off' tactics, of little deals on behalf of small local enterprise, admits respect for tradition and consequently a planning based on appeasement, saying 'yes' to all comers, essentially reassuring, pleasing to aediles, considered extremely *comme il faut*, sailing under the banner of the past, but conducting both countryside and cities to a rapid ossification and death. This type of planning enjoys considerable esteem, it is admitted and generally practised. This is the planning which is always on terms with private

property; according very well (or very badly) with the present Statutes and the inviolable rights of a host of little kinglet-landlords, for ever sitting on their high horses and blocking the way. But this type of planning, of course, does not possess the secret of those unexpected and profitable revaluations which are the outcome of the efficient plan and which would dazzle our kinglets, could they but conceive them. And finally that old-time planning is prepared to maintain, to uphold against all comers, the tragic *status quo*—in spite of the cul-de-sac into which it has led and will always lead us; the cutting up of cities into blocks aligned along the streets, façades facing the street, courtyards inside buildings . . .

And yet a new phenomenon had burst into our streets: the automobile, and you know the rest. Nobody protested because everybody thought there was no remedy, and that this was to be the permanent and inevitable destiny of cities. Homes on the street; homes on the courtyard; homes without sun. And homes are without sun to an extent which few would imagine. Tuberculosis comes where the sun's rays are shut out. I do not propose to illustrate this thesis by the slums, nor even by the ordinary workers' quarters; I have all the proof I need in a certain 'Island' plan, model by the H.B.M. built with the money of the city of Paris itself. For this enterprise the organisers were given complete liberty, the guardian city was about to create examples for others to follow, the H.B.M., that triumph of twentieth-century achievement!

The actual appearance of the plan is attractive; any aedile might be persuaded that here was the real thing, an innovation; he might even expect that the courtyards, the corridor-streets of tradition had disappeared; he might feel that light and air would rush in, that the sun was everywhere. . . .

The analysis which I am about to make is based on the principle that on the 21st of December (winter solstice) every home should be able to count on the benefit of a minimum of two hours' sunlight per diem.

And now, here is the result of my analysis:

- (a) The black lines never get the sun.
- (b) The thick broken lines get the sunlight for half an hour.
- (c) The medium broken lines get from half to one hour of sunlight.

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- (d) The thinly broken lines indicate from one to two hours.
 (e) The unbroken lines get over two hours of the sun's rays.

Over a total of 1,155 metres of façade, the picture stands out in figures as follows:

(a) Totally without sunlight	-	-	905 metres of façade
(b) $\frac{1}{2}$ hour	-	-	35 " " "
(c) $\frac{1}{2}$ to 1 hour	-	-	40 " " "
(d) 1 hour to 2 hours	-	-	50 " " "
(e) more than 2 hours	-	-	125 " " "

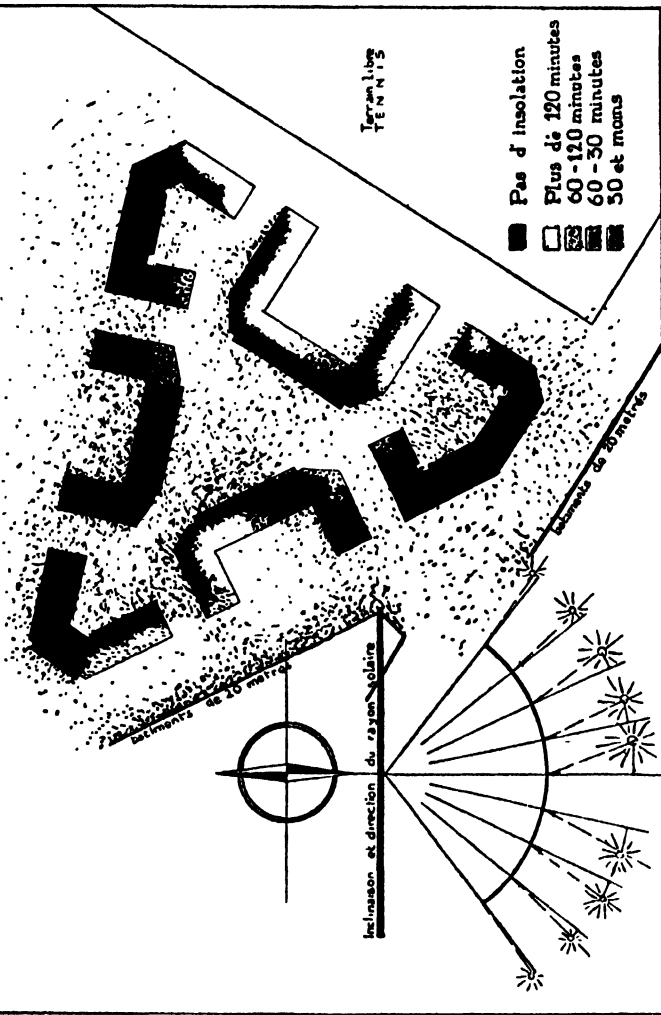
In relation to 1,155 metres of façade, 905 never get the sunlight on the ground floor.

I am not even discussing here the vilest types of speculation, where human flesh is only good to rot; I have already talked of such outstanding examples of town-planning, now current in Paris. I have not, of course, even considered those *essential joys* which are the key of modern planning: sun, space, verdure, all the means of renewing a proper contact between man and his roots; all I have attempted to do here is to set out the conditions which make for life or death. . . . And it is death that triumphs.

'Oh, please let me see the view!' That's the common demand, as indeed it is the accepted expression. We built, about 1933, a block of flats, eight stories high, to the west of Paris, and on one of the few sites which remained after the levelling of the old fortifications. This little parcel of land was situated in a manner which corresponded with the *Radiant City* theory: facing East-West, views on one side over sports-grounds surrounded by trees, on another a view of the Boulogne gardens, and in the distance the Bois de Boulogne itself, Meudon and the Mont Valérien. The building is set upon a line of five reinforced concrete posts (or stilts) which, together with the two party-walls, bear its entire weight. The façades are of glass for each individual room, from floor to ceiling, from wall to wall. The building was finished right in the middle of a building slump, but the flats were all let immediately.

'What should we do, if we were obliged to leave this,' say the tenants. The gesture made by every visitor to this house is the same: they come in, rush towards the light, lean against the large glass wall, and exclaim, 'Please let me see the view!' And there

BASTION 67. Ensoleillement : 21 XI au rez de ch.



H.B.M. 'Island' Analysis with reference to sunlight available

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they remain, standing in the light, face to the sun, in front of the sky and the trees.

The Charter of Athens drawn up by the C.I.A.M. in 1933 announced: 'The principle elements of town-planning are sun, space, trees, steel and reinforced concrete, exactly in that order and with that relative importance.'

And here we have, in fact, the essentials of modern planning in relation to housing. Those three elements which do not normally find a place in the builder's estimate but which assume a preponderating importance on the ground plan, can quite naturally be incorporated into our schemes: sun, space and trees. It rarely costs anything to set these in the forefront of our plans. Let us imagine the administrator putting them down in chapter one . . . and the authorities, also, by decree.

With regard to all such matters, this is how a good modern planner proceeds: he draws the outline of the site (city, quarter, sector), its topography; he traces the plan of the sun's course; the line of his façades will face the sun, the Eastern sun, South or West. No home with a Northern aspect. He is careful to ensure sufficient space in front of dwellings to obviate the slightest danger of obstructing the sun's rays; he arranges to have in front of his dwellings a vista of sky and open green spaces sufficiently vast to allow the inhabitants all possible amenities of health and beauty. He makes a new ruling for the road: he will have separated once for all the fate of the pedestrian from the onslaught of the car: it is the pedestrian who will occupy the ground of the city, the quarter, the sector; this ground is planted with trees and grass; the cars are far away. That's how the modern planner works; there already exists a world-wide bibliography for the instruction of those who really want to know.

And the administrator must choose between an impasse, or salvation, between one or other of the two opposing types of planning!

And who is this administrator? Is there, in fact, any administrator in matters of planning?

No, in France there exists no planning administration. And particularly this is true of Paris, the capital of France and the whole world's darling city. There are only a few aediles torn

between their telephone receivers, their electors and the list of public requirements from day to day. Traditional planning has the place of honour. The other is absolutely unknown, or rather considered dangerously revolutionary (we have seen it nevertheless rejected in Moscow, well received in Rome, spurned in Berlin, etc.)!

Chance enabled me to gain the ear of an aedile, one particularly concerned with the housing problem. He was bothered because he knew nothing about the new theories. He asked for documentation; he swotted at it; he drew his own conclusions. Everything about it seemed to him to be so right, so true that he even imagined its imminent triumph would be easy. I fear that he will encounter some serious obstacles. *They* know how to create a boycott of silence, how to clamour of idealism or utopia; *they* know how to rouse suspicion by coldly calculated lies, or dishonestly to introduce political factors into what is in fact solely a technical question.

And the man mainly responsible for the health of Paris once said to me: 'Come, now, you are really not going to suggest that the whole of Paris should be re-designed on this pattern? A small section, perhaps, might be admissible'.

But isn't the point to discover the actual fundamental truth? If one takes a turning at the fork-roads, one's direction changes and a host of other matters with it; the Gothic was not compatible with the Romanesque; steel and reinforced concrete are not compatible with stone. And to bring that theme up to date, the 'Insalubrious Island, No. 6' must be rebuilt in the style of *Radiant City* in order to establish a tangible proof of the larger issue, in order that a fragment at least of the great East-West cross-cut of Paris should be anchored somewhere within the city's precincts; I was sent to visit M. Bouthillier, head of the Financial department of the city of Paris. I mention his name because since then he has been considered worthy to become Financial Supervisor for the whole of France. I went into his office at the Hôtel de Ville. The walls were hung with pictures acquired each year by the Municipality from the two official salons, 'Les Français' and 'La Nationale'; they were stuck on like a collection of postage stamps. (This type of painting, I might add, plastered all over municipal buildings, gives out a most depressing atmosphere.) Luckily, M. Bouthillier knew me neither from hearsay nor even

by name. No prejudice existed, for or against. The theses of modern planning are straightforward, clear-cut, polished and re-polished by ten years of discussions at the C.I.A.M., passed through the fire of professional and public opinion in all countries. M. Bouthillier is a man who demands good measure. We parted on the best of terms. He, on whose shoulders lay responsibility for the city, had felt in these new theses the tangible realities of a sound bargain. 'Come back and see me, I beg you, we must talk of all this.' What rare words.

In general, they are well versed in the art of saying 'No'. It has almost become an official formula, sanctified by long practice; to throw out, to put off till to-morrow, to dig one's toes in, obstinate in the face of possible change.

There are, of course, a dozen different ways of saying 'No'.

Let's start with *Topaze*, sitting on guard at every outlet, ready to block every trickle from the tap of finance. Its work is on a tremendous scale; invested milliards have made it possible to plaster the country with rubbish, with sterile works. They are sterile in that they are not the outcome either of beneficent constructive forces or of altruism. We spoke recently of certain decisive work undertaken by the city of Paris, the city's most gigantic enterprise in the way of multi-cellular blocks: inexpensive dwellings, to be built over the whole of the old dismantled fortifications; 33 kilometres of buildings, seven or eight stories high (100-200 metres depth). A total of five million square metres of city territory (I have not the exact figures before me); the equivalent of a rectangle five kilometres long and one kilometre wide, stretching, for instance, from the Etoile to the Hôtel de Ville, and from the Seine to the Gare Saint-Lazare; equal, for instance, to the whole lay-out envisaged in relation to our 'Plan for Paris, 37' which was concerned with an *administrative city* (public and private business) and which would not only have installed the technical means for the city's liberation but have been a witness to the splendours of modern architecture.

But this work of the city foundered in silence. Now and again a bubble came up to the surface, an abscess began to form. But nothing got through. Money circulated, and it sewed up a number of mouths. Staggering stories were put around. And what would it have mattered if the enterprise had lived up to the immensity of its plan; we should worry if a few people had

managed to get rich, as long as the life of the city had been improved!

It was a question of something which appears to leave the average elector unmoved: the home, *his* home. The elector is drawn by the mirage of high-sounding ideas, ART, magnificence! He gets worked up over the old or new Trocadero, theme *par excellence* for café terraces. But the home, nobody bothers about that, only the men who are allowed to spend our milliards. Nobody gives a fig for the Parisian or for the country at large.

The enterprise of which I have been talking cropped up in the great hour of architectural revolution: the period of steel, glass, concrete. It was a unique occasion—one might even say sublime, given its main objective, the home—for bringing together all our discoveries, all our research, all our suggestions for the future. The city was about to take on a stupendous work; was about to show the country a model of its type. Not one cubic centimetre of this enterprise but would have been a proof, an important historical document, a victory. This is what the homes of France will be like after the Great War, under the aegis of a new age.

Nothing was attempted, not a single experiment was made. A desert on all sides, sterile and empty. Enormous cubic forms are piled one on top of the other. But in the matter of architecture, nothing is done that is either useful or efficient or prophetic. Nothing in the matter of planning suggests that Paris *goes on*. Paris is suffocating, choked within that belt the imbecility of which has been once for all exposed from the air.

And over these five million square metres of ground well exposed to the sun, they will put up *cañons*, narrow courts, those pseudo-courtyards called streets; façades in the shade or façades creators of shade. *Poor banished sun!* Yes, they have achieved what they wanted; the sun can only permeate an infinitesimal section of the houses. Doctors tell us the absence of sunlight is a direct cause of tuberculosis. Architecturally, the problem of the windows (means of access for the light) had its solution; the problems of ventilation and heating (regular breathing) had theirs; the question of child-welfare, salvation of childhood; the preparation of the adolescent for life (the workshops of youth); the great problem of the pedestrian and the automobile could also have been solved.

But no vital suggestion was made, no solution 'was effected.

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The whole business got side-tracked into a very different field. Impressive H.Q's. of specialists were formed, not so much promoters of the home as the highwaymen of finance. And the work once set on foot, the provinces were honoured by a visit of the Paris pundits. At Marseille, for instance, when the moment came to examine suggestions concerning the vast blocks of an Inexpensive Housing Scheme (capitals please!) it was found that tables had been prepared on the premises of one of the most expensive local restaurants(!) where these gentlemen, of course, could more readily discuss matters of public interest (both as concerned the plans and the *materials* to be used).

Another time, it was the Le Bourget aerodrome. What I am about to tell you is only a detail (which I happened to know) and must not be taken as a direct judgment on the final result which is, perhaps, even good. For the preliminary plans, the Administration by-passed that type of so-called democratic competition (so misleading) which makes a boast of 'anonymity', and with laudable pluck they called together a few well-known technicians whose reputation was a guarantee of ability to solve this very *new* problem!

One of the elect, however, had some misgivings. Having been the victim not infrequently of similar situations, he went off to interview the man in charge, and the following conversation ensued: 'Before embarking upon this difficult research, upon the expensive development of plans, I wish very seriously to ask you one question: Do you suggest that I should be justified in starting such a work?' The reply was: 'Have you a strong backing in the right place?' . . . 'Thanks,' said the technician, 'I am not competing.'

Solid backing among the hierarchy concerned! About three months before this, on the occasion of a large dinner, the technician in question challenged one of the principal authorities connected with the International Exhibition of Art and Technics: 'How was it that our contribution²² was dismissed at the first round by the jury of which you were a member? It conformed rigorously with the stipulations laid down and was thus only liable to rejection at the second vote.'

And this was his reply: 'It was already pretty difficult to find among the hundred and sixty competing items submitted (anonymous competition) those five to which we had decided to give

²² Les Musées de la Ville et de l'Etat, at the Quai de Tokio.

preference.' Retort: 'You're just a lot of . . . ' Reply: 'And you, you're just a child!'

Yes, integrity (decency) is a characteristic of childhood. It gets tarnished as the years go by.

In the meantime, the Museum was built; at least one half of the cyma prescribed by the terms of the original competition were lacking and nobody could see the pictures which were veiled by the reflection of a lighting system which had been designed exactly upside-down. At the present time there is a scheme on hand to demolish one section of the galleries.

As a matter of fact the whole question of public competitions needs overhauling. In France the 'anonymous' (thus supposed honest) competition was just a rag, the 'honesty' involved having little in common with the accepted dictionary definition of that term. Nothing could be more arbitrary. In other countries, 'anonymous' competitions really are the means of an honest choice. A matter of tradition, perhaps, or of ethics. So much the worse for us.

But it is precisely in cases in which integrity is guaranteed that the weakness of such competitions show up.

And first let us ask ourselves this question: Why must we have public competitions at all? Reply: In order that a democratic authority should be able to wash its hands of the whole situation by saying: 'You see, I have opened all the doors, I have called upon all available sources'. But by the terms of its own procedure it precludes those very qualities the discovery of which was alone its *raison d'être*.

And there is another side to this question: we shall always find people ready to assert that some unknown genius is being kept in the shade and that competitions give him his opportunity to come out. Worthy objective, true perhaps, but liable to create havoc when delusion about the unknown genius achieves noticeably poor results. Indeed, it often entirely precludes the help of architects of real standing. Thus expenditure of public money will once more be open to attack and the public eye will once more be afflicted by undistinguished and inefficient building. And the chariot of progress is held up again.

But let us continue to examine the *honest* competition. There has often been occasion to note this anomaly: some famous architect competes, involving considerable expense in the matter of

draughtsmen. The plans are prepared in his own studio. But one or several of his assistants also decide to submit their individual plans. What is to prevent them dipping with both hands into their chief's ideas, and—since it is they who will be carrying out both projects—what is to prevent them giving preferential treatment to their own? To be even more concrete: in this period of transition, when confusion reigns, a master architect represents a cluster of theses which are individual; he even has a method of annotation which is personal to him, which is his own creation and immediately recognisable. Put yourself in the place of a jury faced with such a disturbing alternative; it is by no means unusual to see the plagiarised version preferred!

Here is our jury. A competition has two ways of making itself felt: by the quality of its programme and the quality of its jury. The personality of the jurymen is the most significant thing about a competition—its guarantee. People enter competitions mainly on the standing of the jury. It is the sign of law and order, the stamp of justice, a moral contract established in advance; jurymen with names, recognisable names, real personalities. But in France we had recourse to anonymous entities, representatives of groups who would pick the man of their choice at the right moment.

Let's just see how the anonymous competition appears to the professional who has been invited to participate.

A competition costs the offices of an established architect a lot of money; he must mobilise a well-chosen personnel: 30,000, 50,000, 100,000 francs.²⁶ But it is open to all, especially (and generously) to the young. The young, of course, will only spend their time, they will even help each other, for nothing.

A competition is judged and a young unknown has won! Bravo! An unknown genius coming to light. But he cannot be allowed to carry out the work: he has not the equipment, not the means to embark upon a large contract. Alternatively, his youth—necessarily inexperienced in the carrying out of a complex scheme—does not inspire confidence. The poor lad is both hurt and disappointed. His work is to be executed by others 'under his control'. One knows what such a statement can and often does mean.

A big architectural practice, composed of people with real

²⁶ Pre-war values. (Tr.)

talent, is generally very busy with its current work. Two alternatives are possible: first, the competition is interesting and the studio will 'go all out'. But in view of the unsatisfactory nature of such public competitions, one is rather tempted to stand down. The alternative is to run up some quick scheme, and then nothing useful will have been accomplished. In actual fact, a considerable number of good architects refuse to take part in competitions. Or perhaps 'the boss' gets himself in well with some of the jury. . . . And that's where the rot sets in.

It is time to recognise the essential error of the anonymous public competition. An architectural work is the product of a long gestation. On one side *needs*, those of the client; on the other suggested means for satisfying them. No one, I think, will deny that in the actual practice of architecture any vital work must be the product of this collaboration: the technical requirements of the client, on the one hand; the building capacity and choice of materials made by the architect, on the other. The original scheme undergoes a long process of adjustment: the requirements of art itself, those of technique and the available elements of building (solutions of a purely architectural order, mathematical calculation, and the state of the current markets in relation to the supply of materials). The initial project might even have been vague, sometimes a bit bandy-legged! Often, in the process of working it out, some suggestion by the architect throws a new light, modifies many of the original intentions, simplifies and adds vitality. Meetings between the client and the architect take place almost daily, a never-ending discussion.

But the open competition puts down an iron curtain between these two protagonists, the barrier of the fixed programme. Any personal contacts are taboo.

And that is the capital sin of competitions; that is what makes them worthless. Any good architect must suffer from that lacuna; he needs to question, otherwise the simple dry text of the 'programme' will not disclose its secret.

I have often been questioned about this blind alley of the competition and after some thought I have drawn up the following (it seems to me reasonable) conclusions:

(1) The Authority must recognise his responsibilities. An important architectural scheme is under consideration, involving a heavy future expenditure. There are a number of important

architects, men whose names have become the proverbial 'household word' (the technical press has seen to that). Why shouldn't the Authority take upon himself to call upon some three to five famous architects, offering them at least to reimburse their expenses for drafting the project? These three or possibly five architects (with all the resources of their practice) would compete.

And each of the competitors will be pleased to take part, certain that his project—unmistakably signed—will be carefully examined (since it will have been paid for). And he will go into it with enthusiasm because it will be, in fact, an interesting problem. The ruling passion takes a hand. And behind this professional ardour, there is a whole career of research, discovery, invention, experience.

In such a way, the Authority would be assured of some reasonable solution of his own problem.

(2) But the Authority has no right to be arbitrary, to shut himself away from constructive criticism and suggestion. He might unearth something miraculous; the effort of the unknown genius! And why not? Stranger things have happened. He will therefore open a second public competition, simultaneous but not anonymous (why should it be?).

Imagine the confidence with which a jury, in such conditions, might go forward; the masters propose as follows, but this unknown (or possibly even known) genius proposes—either for the general set-up or for some detail—a miraculous solution. This last is the crowning contribution. There is no excuse for hesitation: the final enterprise must emerge from so rich a combination.

That seems to me to be the intelligent way. True, it implies integrity. But the necessary foresight displayed in choosing the jury will have taken care of that.

And in conclusion: what excess of scruple, what panic in the face of responsibility prevents an alternative and simple solution (in exceptional cases only): merely to choose some famous architect and to give him *carte blanche*, in the exceptional situation. Is it fear of injustice? What humbug! A man has won his spurs by the labour of a lifetime. His name now belongs to his country. Will the authorities of his country be failing in a sense of duty by allowing him an occasional chance . . . will they not rather be expressing a reasonable sense of gratitude?

We have always known that *Topaze* was cunning. And now, here it is dressed up as a philanthropist.

It is not, itself, playing the chief part on this occasion, but has become costumier, jack-of-all-trades behind the scenes, fixing the lights, pulling strings, keeping pace with the actors, even lending a hand from time to time.

The post-war period (1918) drew crowds within the precincts of the great cities; the country was deserted, Paris filled up alarmingly. 'Housing crisis' became a pet theme of the popular press. Parliament passes a law, drawn up by a man of the building trades: *Loucheur*, the law was called after him. The poor, the destitute, the despised could now have their houses. This law was to abolish the tied house. That type of slavery (the tied house or cottage) can easily be the outcome of commercial schemes in which capital is risked either with or without legal protection; can easily reign in those working-class districts in which the big industrialist tends to lodge his man-power. Abuses have been patent: masters who have managed to reduce skilled workers to a state of slavery by the simple means of the tied house. Should a workman want to leave the factory, he had to abandon his *home*! Naturally, he stayed.

But under the terms of the Loucheur law, the workman would be able to have his own house built; the State itself would ensure him the means against certain simple (quite natural) guarantees. He, the working man, will be able to draw up his own plan, engage an architect who will guarantee the terms of his project, and estimate. The working man himself will submit it to the Ministry of Labour for ratification.

One day M. Loucheur called me in and asked me for a plan. Six months later I submitted the scheme for a type-house of 49 square metres, fluid as to its interior lay-out, adaptable to a variety of individual needs, conceived for building by the methods of pre-fabrication. The Minister was enthusiastic, he slapped me on the back: 'You will build them by the thousands,' he said. 'I shall not be able to build a single one,' I answered, and I gave him my reasons: 1, Never would any working man, of his own volition, think of consulting such an office as ours about his preliminary plans; 2, Even if he saw our plans, he would hate them because this house, which you happen to like, will ring in him no familiar bell (and you must not forget that in matters of housing

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we are always faced with a hard and fast conservatism which is hostile to all initiative); 3, His individual site, lost amidst the quagmires of the suburbs, would rarely be in keeping with the inevitable requirements of a *series*. These were the first obstacles. They were inherent in the very importance of the plan.

And the second set of obstacles was to be found in the current mentality of the big French industrialists: never would one of these be willing to take the risk of laying down plant and assuming the other necessary expenses in relation to so unknown a quantity as *prefabrication*. Nevertheless, the Minister sent me to visit one of his friends, a Master-of-Industry. The first interview with the chief went off well. The whole matter was passed over to the service departments of the factory, got sabotaged during ten months, and ended like this: certain loyal members of the staff felt that it would be more economical to engage, at a yearly salary, two young draughtsmen who were familiar with this type of idea. A first series of steel houses was turned out, thanks to a Government order. The type was a hybrid, sticking closely to the old-fashioned interior lay-out of stone or brick houses; on the other hand, it had no sloping garrets, no slated or tiled roof. The houses went up: they were inhabited for six months; then the workers insisted that red tile roofs should be stuck on . . . to make them pretty! And that was that. There was no more talk about prefabrication.

And there is a third main obstacle which hinges on certain deeply rooted prejudices and convictions among the modern working classes: one driving force alone impels the serious working man to-day: to become as skilled as possible at his work and to take on, outside the factory, all the exterior hall-marks of success. One fine day, this workman acquires a home and makes a supreme effort in the matter of his furniture: is it not to be the background of those happier days to come? And this effort will consist in buying all that is necessary . . . and even a good deal that is superfluous. A powerful and ingenious industry has laid its traps: the furniture shops of the Faubourg Saint-Antoine, which in a former period became vastly rich by flooding South America with a horrible and vulgar luxury. That market had disappeared, had fallen down dead one day in a fit of apoplexy. And then salvation hove in sight; a new market—working-class furniture, almost as magnificent as that which had been made for princes.

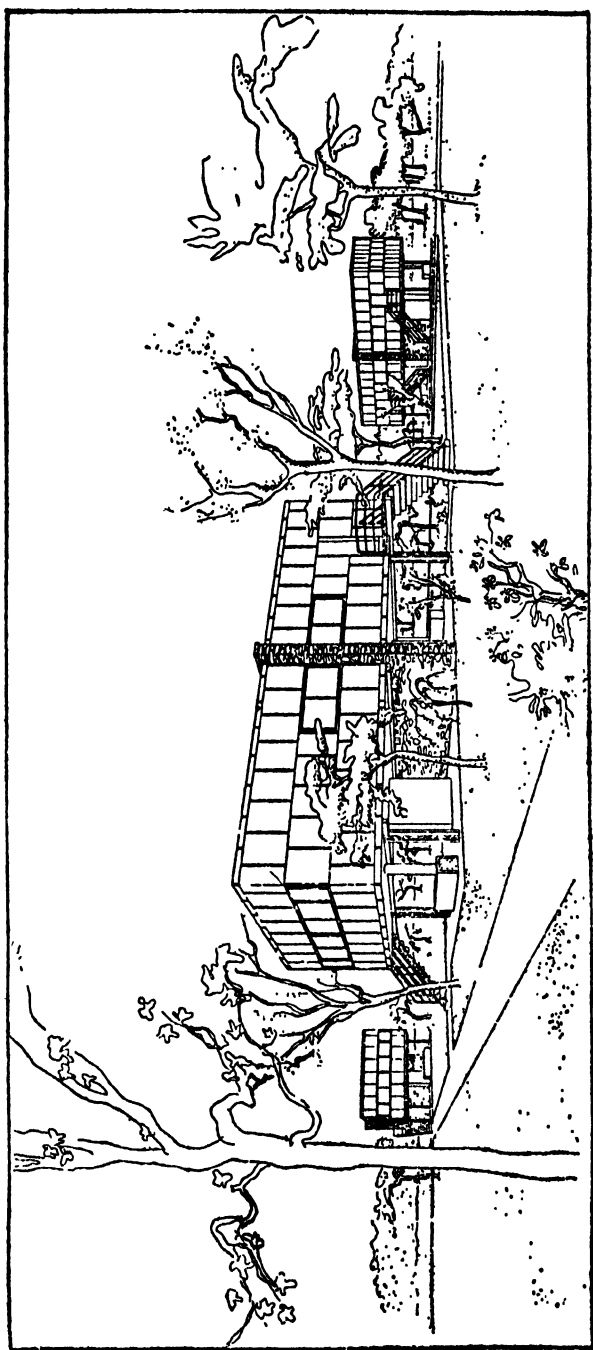
ADMINISTRATION

Hum! With a bit of publicity, the world will swallow anything. And the result, Mr Minister, is that your Loucheur house of 49 square metres (conceived on a plan of built-in, fitted furniture) will not be able to contain the heavy cupboards and wardrobes still dear to the working classes. Or, even if they can be stuffed in, the home becomes so crowded as to be no longer even a decent cage at the Zoo. Thus, one must build a bigger house, and the new economics are put out of joint.

What had enchanted the Minister about our plans was that all the main furnishing equipment was built-in, was a part of the very walls themselves and of the lesser partitions. For furniture is a response to the human gesture, the human need; for each individual gesture, its appropriate rack or drawers, a table, a chair and that in the exact spot where the gesture will be made (see our theses of *L'Esprit Nouveau*, 1919-23, and in the publication *Art Décoratif d'Aujourd'hui*, 1924-25, etc.). And so, the Minister said, we shall be able to make smaller houses, or rather, one might say, those particular measurements, in view of the new conditions, would be large enough. And he also took into his calculation the fact that by adopting this principle of prefabrication he would be opening up to industry an enormous new potential: the complete equipment of the perfect working-class home, that programme which had come to us in a glorious flash. But instead, this is what happened: the Faubourg Saint-Antoine headquarters of a moribund, outmoded furnishing ideal (hangover of dead styles in an age which had completely transformed its notions of *home*), that vast furnishing industry took itself out to Levallois-Perret, manufacturing centre of coach-work for automobiles. And there it developed on a colossal scale a new notion of comfort, of efficiency, of economy . . . an ideology of 'the right thing to do' (of bourgeois convention), a contemporary *style*!

And this third obstacle, Mr Minister, will only be surmounted by means of a nation-wide campaign, particularly in the elementary schools, by means of the films, the daily newspapers, and the magazines. Couldn't we have a few less crime waves, fewer whole-sale swindles by millionaires? We must permeate the thought of the nation with that cardinal requirement: to establish a proper and intelligent and contemporary sense of values about the conditions in which we live.

The fabric of the Loucheur law left a loophole through which



Loucheur Houses

big business could creep in. Companies were formed, agencies which lacked nothing in zeal. Their salesmen honeycombed the working-class districts in search of those who could be tempted by the prospect of a pretty home, a 'roof over one's head' (prospectus and poster designed by those who knew what they were about).

And then, in the rotting suburbs, rose up the 'housing estates'. And while Paris moulders, the country near at hand suffers the onslaught of the octopus; fields, gardens, meadows, all become engulfed—traffic circulation gets worse and worse. And these new communities, having grown up in a state of penury, are unable to establish normal financial conditions. A commune is composed of streets and gutters, of centres for the distribution of water, gas and electricity; it requires upkeep, schools, hospitals, police, etc.: it even has a soul. But Paris has allowed to grow up by the hundred thousand certain inalienable rights of private property, whereas her future, of course, demanded the exercise of wide and protective powers in the public interest. Paris is disgraced by this endless sea of bad housing estates. Every trip into the country, by car or railway, confirms it. And when one flies over it, the horror is indescribable, a leprosy. A lamentable situation; unique in all the world.

I had said to the Minister, facetiously: The Loucheur Act will only be successful if the authority calls in the Salvation Army to put it into effect. The 'Army' knows how to uncover misfortune and to discover the worthy poor; the Salvationists will know how to set up identification records. And then, good sister-of-charity, the Army will teach them *how* to live in their houses, because *how to live* calls for a technique in itself, and to know how to live in these homes 'of the new spirit'—the only type of home which can be turned out by heavy industry, in mass-production—demands education. And anyhow, to know how to live is a matter of national importance which requires an educational campaign beginning in the elementary school. . . . All this was said partly in jest, but this much is certain: the whole business of reconstruction as regards the homes of our country can only be achieved by men of goodwill employing a sound modern technique, and by honesty and high purpose.

And then there was a pretty rumpus in the building trades. Suddenly a voice was heard which purported to speak in the name

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of Country, Beauty and Intelligence. It advised us all to turn back to the primitive virtues, to turn back the clock, to resume our old and noble and eternal traditions. 'Go back to the land of dreams!' Sweet and reassuring words. Let us never again abandon the old stands. Let's play for Security! Close the road to these innovating madmen. Return to wisdom. These inspired words made a profound impression. Immediately the aediles felt reassured in the matter of their past decisions, the architects of the old school didn't need much convincing, and the business men foresaw a perpetuation of their old and well-tried stocks.

And all this came about through a lecture by an elderly professor, honest, still full of ardour, but enraged by the advent of a new age.²⁷ A terrific gathering at the Salle Wagram, where every man was able to recapture the sweetness and light of his youth. The lecture was produced in pamphlet form and circulated all over the country and in the Colonies, to say nothing of innumerable copies all neatly prepared for the press. It was felt that 'it was high time to take a stand'. And to crown the whole campaign, there was a sequence of fifteen editorials in the *Figaro* (that was in Coty's days) by a writer as highly impassioned as he was highly paid. Needless to say, he was completely ignorant of the problems involved, of the history of the contemporary movement, of technical discoveries and requirements, and of the development of these (already a matter of history) throughout the last hundred years, in France. And finally, the fifteen articles were published, in book form, a book whose compiler did not hesitate to employ any low trick intended to mislead: quotations cut and out of their context, wholly unauthorised juxtapositions, etc. Another *J'accuse*. But this time the wrong way round. (*Is Architecture about to Die?* Camille Mauclair.)

One knew something, of course, about the background of this campaign: the halloa had been given by the professional organisations (Chambers) of the carpenters, stone-masons, manufacturers of tiles and roof slatings.

And from then on, the slogans of the original lecture became the catechism of the building trades: 'Lovely thick walls, solidly rooted in the soil of our country', 'Adorable silhouettes of little belfries, dormer windows, decorated ridge-tiles', etc.

²⁷ The architect Unbdenstock, Professor at the Polytechnique and Beaux Arts.

The twentieth century, and especially be it noted by means of the genius of French inventors, had managed to arm the future with the miracle of steel and reinforced concrete. We remember the names of Labrouste, Eiffel, Considère, Séjourné, Freyssinet, and many others. Ah, yes, with such technical means at our disposal, the activities of the craftsmen would no longer perish but be in fact transformed by new methods. The master-craftsmen, a title revived by those who precisely had been most guilty in architecture's shameful decline, took it upon themselves to save the day . . . to say nothing of the country. From then on, they were going to have *carte blanche*, an open road nicely laid with tin-tacks. And academic opinion, in the midst of a twilight not even lit by the rays of a dying sun, raised its head again. It had always had some solid backing in the Ministries and Municipalities. The rumbling assumed such proportions that our masters (those who are now established in the seat of Colbert) became impressed.

To every sincere effort, to every constructive proposal designed to satisfy the country's essential needs, the Academy says 'No'. And the Academy felt itself strong in its alliance with authority.

Isn't the Academy that bright gem which the country created for its own enjoyment? This Council of Wise Men, superior to all others, is there to inspire the rest, to point the compass. Of course it is! But Life has no use for Academies.

When a tree as powerful as that of contemporary technique rises into the heavens, when the leaves and the twigs swarm with life, when the trunk and the branches swell with that sap which is drawn from nature herself through the roots of calculation, discovery, experiment, such an entity, such a growth fills some of us with joy to overflowing, but many are overwhelmed with dismay. The time has really come to cut short such indecision: we must decide whether to go forward or to stand still or to retrace our steps. But decision will involve new situations. Because the effect of recent discoveries is such that the very fabric of society is shaken, given a new impetus and pushed along irrevocable new roads of unknown destiny.

And this engenders panic.

Panic at the notion of any change, panic no longer to hear the purring sound of uneventful days.

Some decisive weapon will be needed, some terrible engine of destruction to arrest that smiling hero in his course. And the avenging sword is grasped by the universal fear of change.

'The Frenchman is an individualist.' That is the final reassurance for our self-esteem and by the same token expresses our determination to avoid all change of course. The last word has been spoken. The road is barred.

After the 1914 war, I was at a big meeting connected with the reconstruction of cities: delegates from the devastated areas, architects who had not yet become *planners* (it was then a little-known word), some charming and philanthropic ladies. There were speeches, reports, suggested programmes for the future. One delegate for the wrecked villages took wing on a flight of eloquence: 'We will rebuild our villages and farms, stone upon stone, exactly as they were, the old dunghill in the same old place, the same stable, and the same door on to the road . . . nothing must be changed . . . everyone must be able to feel at home exactly as he was before . . .' Terrific enthusiasm: the meeting ends. I seek him out.

'Monsieur,' I said, 'I am too young to permit myself to interrupt you when you are speaking in public, but I have come in all modesty—but categorically—to tell you that you are contemplating an abominable crime. Just think what your words really mean (those words received with irresponsible enthusiasm, and a moving show of patriotic feeling). Your suggestions would entail the death of the country, the negation of a renaissance.' And that man, still all worked up by his own peroration, was stupefied . . . and he understood. 'Oh, voice of youth,' he said, 'how right you are: it is you who represent the fulness of life . . . what, oh, what have I said?'

And recently a Committee of Enquiry into matters of production in France, set up by the Présidence du Conseil, at the Hôtel Matignon, asked me to submit our thesis of the residential quarters known as 'Ville Radieuse', or 'Radiant City'. A detailed exegesis, illustrated by lantern slides and *maquettes* (or models). First, one saw on the screen pictures of homes built in the best conceivable conditions for planning and which—thanks to certain circumstances which worked in our favour—were in strict conformity with our studio (our *laboratory*) designs: sun, space, verdure, the three pillars of our doctrine.

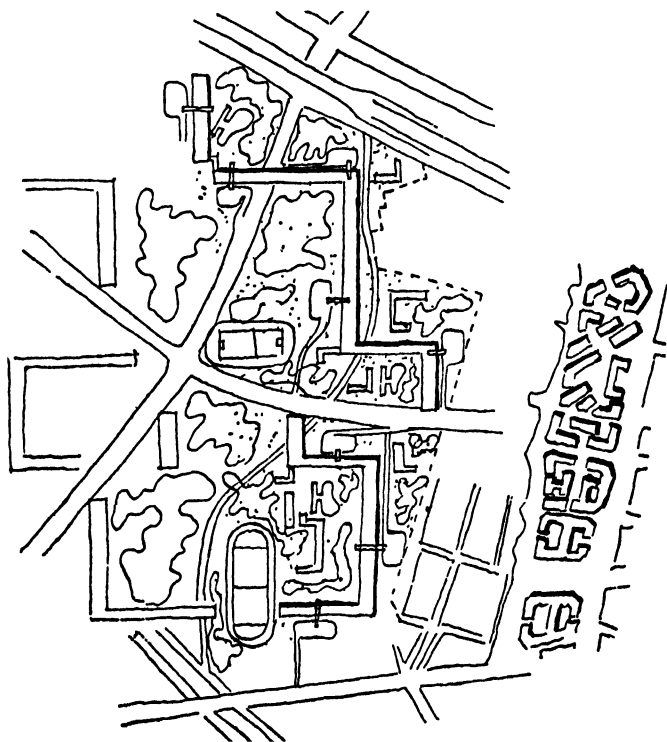
And then, pictures of those ensembles which were to bring a totally new life to cities: separation of pedestrians and automobile traffic; the ground of the city, yes, the whole ground—100 per cent of it—put wholly to the use of the pedestrian and covered, furthermore, with lawns, with foliage, with the shining brightness of swimming-pools, with tennis courts and grounds for football or for basket-ball; under the pillars (on which the blocks are set) are covered playgrounds shaded from the sun and rain-proof, for the children; day nurseries, maternity clinics, elementary schools, workshops for youth, are all laid out amidst gardens; the main dwelling-block only covers 12 per cent of the ground's surface, the other 88 per cent consists of gardens and open spaces, and even the 12 per cent which comes under the building supplies in fact exactly 12 per cent of covered playgrounds. Also, the fact that the building has been set up on pillars (or stakes) has thus freed the ground for the purpose of circulation, the coming and going of pedestrians takes on a variety of new and practical methods: speed or simple enjoyment. In the meanwhile, on the roofs are installed the means for sun-bathing together with physical culture centres amidst the shrubs and flowers; and that makes another 12 per cent of ground gained for gardens, artificially created, taken from the city's precincts and set up in the city's best air—these are veritable beaches, a long ribbon of them (since they comprise the tops of all the buildings), health-giving playgrounds. And finally, behind the glass walls are the homes themselves, diverse, individual, entirely fluid as to the interior disposition of rooms; from each one opens out a view on to trees and swards, on to the sky and vast open spaces: sun, space and green—a return to nature. And there are other notable advantages in connection with our blocks: catering at cost price by co-operatives in each dwelling unit; domestic service organised by a central bureau (as in palaces or liners!), but here it is available to men of modest means and solves the mostly insuperable problems of home life.

And all this has become possible through the simple exercise of common sense combined with the spirit of co-operation, through the powerful contribution of modern building technique, through an already accomplished architectural revolution.

The delegate of the official architectural societies got up: 'You, sir, have forgotten that the Frenchman is an individualist, and that such solutions as this are thus impossible in France.'

PLANNING OF THE ROUTES

It was actually a question of that 'insalubrious island, No. 6', a minute study of which—fruit of twenty years' effort consecrated to the study of modern housing—reveals the fact that there is no valid reason to prevent putting such a plan into operation, in Paris, to-morrow . . . if anyone wished to do so!



Ilot 6 and its housing scheme (H.B.M.)

The key to the whole situation is this individual liberty. Didn't I frankly state, towards 1932, in my town-planning report to the city of Moscow: 'I consider the corner-stone of all good modern planning to be a respect for the sanctity of individual liberty'? And that caused something of a rumpus, in Moscow!

Co-operation enabled us to build a fleet, a railway system, a system of highroads, the navy of the air. Co-operation might also

open the way all over the country for the building of *Radiant Homes*. Not to co-operate is to perpetuate the 'housing estates', or the landlords' racket, under the aegis of which now operates that precious individual liberty (or what we now call such) to the maximum inconvenience of all concerned; it is to consent to a life almost entirely divorced from natural riches, to enter the inevitable path of disillusion, lethargy, fear of all initiative.

A narrow individualism is nothing but stupid conservatism: accepting the radio as a substitute for thought; the cinema, mouthpiece of opportunism, expediency; the daily newspaper soporific for the idle hours. It is also those horrible wall-papers, defacing with their insolent, chaotic presence the walls of the structure; since 1925 (International Exhibition of Decorative Art which saw the twilight and indeed the burial of a cycle), these are the last kicks of something which proceeds from a tainted source—and then all that hire-purchase furniture; and the 'styles' of the Faubourg Saint-Antoine which (in view of their destination) are so farcically named: the bed of Marie Antoinette, Henri II's cupboard, and the chandeliers of 1925, and the rugs of 1925—in short, a complete bankruptcy of sane family surroundings, where life is lived under the shadow of the hire-purchase collector, where there are no reposeful white walls, no honest furniture indigenous to a real home and conveying a 'home' atmosphere, nothing to bring out the individual personality and everything to frighten away those *lares* who have long since fled in horror. And we have been accused of wishing to divorce Frenchmen from the virtues of individualism!

Something like five million men will some day come home from the mud, from suffering and peril, having endured in patience, performed heroic acts, developed a spirit of co-operation which their ordinary life had treacherously killed by the pettiness of its tightly walled-in spirit. And when they come home, what will they do? Will they become engulfed once more into that *impasse* which was the cause of the war; the manufacture of armaments is no permanent pursuit and can only lead to misery. Once peace has been declared, we must open new doors to these five million who are capable of becoming five million *new men*; we must open the workshops and give them something worth

while to work on. We need *administration*. The war has given us this conclusive experience: here, in these five million, we have the perfect instrument for production on a huge scale. These are the men who have performed that miracle (by means of the calling-up card) of being every man in his right place and having been taught what to do. That military 'booklet' is prodigious; we and our whole history are there set out, clearly and from every angle; they know what we are made of and all the 'why's and wherefore's'. The perfect offset to the military *livret* would be an alternative booklet for the demobilised worker permitting him to mobilise for peace. Such a census, such an analysis of the qualities of our man-power, is indispensable at the beginning of the task. One needs capable men of all grades at all the stages. And that principle having been admitted for war-time requirements, is it not equally necessary for times of peace? Everywhere we need men with their hearts and their passions, men working under their own names and even entrusted with great responsibilities; we have finished with anonymity. The chief administrator will hand down his name; his name will loom (according to his deserts) big or little in the pages of history. We need people who are prepared literally to submerge themselves in the job, and to do it because they have seen the light: and what they have seen is that more than anything else the future happiness of their country is going to depend on planning.

IX FORESIGHT

WHAT could we do, during the days of anguish? What could we do except anticipate a brighter future? And so we planned for a moment of rich production; planned our *standards*, our types of manufacture, decided how to distribute our factories (men and equipment); planned in advance the switch-over of war material and a war personnel into a mobilisation for peace. Everything was fluid, free, available. On our forecasting seemed to depend the *élan* of the future—the very life force of the post-war years. Human happiness was involved. Human misery threatened if we failed.

And this was the picture which can roughly be sketched in. Our first requirement was to come to some conclusion as to the purpose of life. Fundamental wisdom. We had lost touch with simple human needs in that abnormal, gigantic production of the feverish war years. We had cast adrift from our traditions: a considered thoughtful life in a well-balanced environment; a life of family units, a life of dignity, beauty, serenity. Such a life is a moving sight on the rare occasions when we find some vestige of the past, at the turn of the road. But all the greeds had been unleashed; industry had developed not in the service of mankind, but in order that the limited companies should make their pile; thence a mad surplus of worthless products. The dignity of our homes went down before the onslaught; machines had to find markets; machines had to turn. Well! That's how things were—but things have got to change.

And what have we done with our dwelling-houses? They have been allowed to sink very low, in their wretchedness they have become the very antipode of what they ought to be. And they have been filled to overflowing—yes, stuffed, filled to suffocation, rendered unfit for habitation, hostile and inefficient—through an insane accumulation of the worthless products of industry. This had to happen. It has happened. This evil had to come out into the open, a menace to the very cell of society: the family. It has

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now become obvious. People in due course had to become aware of this problem, and suggest a solution. Throughout the world this is now the great, the only, question: what is the inevitable and satisfactory formula for a home in this machine age. And, before that seemingly impossible task, crushing, chimerical, it was necessary to open the cracks which eventually would undermine the bastions of lethargy and routine, opening up sites for reconstruction. The cracks have started, the bastions topple; we must clear the ground . . . And then we can build again.

The answer is already there: the home considered as the basis of Society. And from what we already have in hand, we can now foresee all the elements—perfect, efficient economical—manufactured by heavy industry, standardised, and ever improving through a process of selection, until they achieve outstanding quality.

First, of course, we must come to some general conclusions in matters of planning. But these are already universally recognised, presented and sponsored by the youth of all nations, youth which has, in fact, become both cause and effect, the producer and the consumer. Money is needed for all this. The money is there; thousands of hands and machines producing objects of general utility; and in the last analysis it is the home which pays. The old idea of money, that money which stood for nothing but frustration, can only pay for death. But the new money has an inevitable and essential purport: the country's new equipment will be the answer (the ringing out from the death-throes of an epoch) to that fundamental question, *What is the purpose of Life?* The scoffers can say what they will, they can laugh, they can snigger, they can evoke every failure past and to come, but the fact remains that the modern man is demanding harmony and the necessary constructive effort to ensure that the world may breathe again—in peace; demanding to manufacture only objects of solid worth, and to turn our backs upon the sterile products of commercialism. How can we sufficiently underline the mutually antagonistic nature of purely commercial as opposed to useful production? How can we make known all that could be done? Well, haven't we already the films, books, elementary schools? We can also show what has *already* been built in the new manner. And we could put into the workshops immediately, according to the new planning principles, all public works and those

whose urgent nature is a matter of public interest. The authorities need only take such a step and the principle will have been fully proved: the proof established *by authority* in a variety of places, Paris, the Provinces, the Colonies. And then a new Springtime will burst upon the world. The old will collapse before the new, collapse suddenly and altogether in the same way as the ice-floes suddenly break loose and carry all before them. A proper sense of values will everywhere spring into being just as in the Springtime everything comes to life, lights up, emerges from the long winter sleep. And these new values anticipate the tastes and duties of every citizen, a host of individual levers which must now be rooted in that one reality: equipment of the whole country with Radiant Homes.

But all these things upon which the happiness of home life will depend must be developed wisely, developed far from partisan passions and the clamour of conflicting interests. Let us avoid crude experiments at all costs. Let *System D* become anathema throughout the country. We shall be obliged to adopt a course not entirely in keeping with the official attitude while we wait for some later endorsement of the new realities. Meanwhile, we shall be opening the eyes of the industrialist, offering him his priority peace-time occupation. And the industrialists' post-demobilisation will not only furnish the country with its new homes, but will simultaneously be ensuring to the rising generation a renaissance, a salvation which can be achieved by no other means.

Some day, when the programme for the *four routes* has been established in all its rich complexity, a Ministry of Planning proper will arise as a national necessity. In the meanwhile, we shall have to content ourselves with an organisation not claiming much more than a general function of Direction.

And at the time of which I write the gradual method by which the proper authority will develop can be readily explained: invention has been so far individual, fragmentary *vis-à-vis* of the ensemble; not yet perhaps ready to face the glare of publicity. Only some final and conclusive plan can be submitted to and approved by the highest authorities. But even during the war certain human qualities stood out among the men engaged in planning discussions; there was the man sincerely concerned with the ills of contemporary society, the whole-hearted physician, avid for public health. There was the man steeped in calculation

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and proportion; the man who knew how to evolve a plan. There was the man well versed in the requirements of a collaboration with industry, and the man sufficiently well informed on fundamentals to ensure the stamp of technical orthodoxy. And together—but guided essentially by their feeling for the human need and its possible satisfaction—they were able at least to prepare the destiny of the *four routes*, to prepare the final programme to be submitted to world opinion.

But the country itself will say the last word. In the days before machinery, all the objects of daily use—windows, doors, floors, houses, furniture—expressed a logical evolution and a natural grace. And now, since the world has become involved in a general upheaval, let us make the effort necessary for a true renaissance: let us base our reconstruction on the solid rock of truth, over the *four routes*.

H. G. Wells, in 1932, had opened for the B.B.C. an inquiry as to the utility of installing Chairs of Planning in the Universities. I reacted violently against this: life alone, I felt, in all its ebullient variety, will point the way to the discerning few.

The last hundred years have been our professors of planning. Let us open our ears to their teaching: let us survey the whole vast horizon. Let us reconstruct—remembering the *four routes*.

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‘From 1000–1300 the cathedrals rose higher and higher throughout the civilised world (Europe).

‘From 1830–1930 the machine carried the dreams of man ever higher and higher—over the whole world.

‘Higher and higher . . .

Dreams now daily coming to life . . .

Calculation, Machinery, Hypothesis . . .

.

‘Higher and higher, and larger.

And never *smaller and smaller*.

Forward and never Backward.

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‘Were the Railway Companies forbidden to try out *their* adventure? And yet they were a menace to the whole social structure (economic, political).

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FORESIGHT

‘And were the presses forbidden to print? And yet that institution, the daily newspaper, was about to lay the masses in all countries open to the propaganda of political parties. It was going to be easier to prepare war, declare war, to equip the war effort with men, munitions and enthusiasm.

‘Were the films forbidden? And yet they were to awaken widespread lust: they were to flaunt their display of riches, to poison the hearts of the simple, to break down accepted social barriers, to open every floodgate.

‘Was the radio forbidden? Yet here was the medium by which the world’s voice was to reach every ear; was to enter the woodsman’s log cabin, the settler’s solitary orbit, the cramped habitations of the city. Voice of the world: music, the excited oratory of leaders, public rejoicing and the perfidy of propaganda. Nothing was taboo . . .

‘As always, the phenomenon, stronger than all else, has pursued its irrevocable destiny.

‘The present is pathetic: there are some (the Americans) who have enslaved themselves to money and the violence of the machine and who cry out in warning: “Don’t drown yourselves like us.”

‘There are some (in France) who are able to assess the not unappreciable riches resulting from 2,000 years of work, of observation, of *spiritual* research, and who cry: “We are lost; we are going to perdition; we shall be utterly crushed by the brutality of the machine” (new millennium panic, but this time for the year 2000).

‘But the Americans, having lost their MONEY, have noticed that their hands remained, and their hearts and their heads—that they were, in fact, just as rich as ever.

‘And so they cheerfully go back to work, in full consciousness of their strength, laughing at the misadventure which befell them, and generously seeking some nobler objective to satisfy the needs of their youthful vitality.

‘And again there are some (of ours, the Frenchmen) who after this second millennium are fully conscious, sensitive, keen, alert, forceful—these men feel and desire and act and affirm: “Keep your faith in life which is good; you who have suffered the dual terror of *Money* and *Machine*, believe now in the creative *Machine* as the way to Freedom. There is no reason to say *die*. A new civilisation is about to be born.”’²⁸

²⁸ *Air Craft (The Aeroplane Indicts)*, Studio, London, 1935.

PART IV

CONCLUSION

X THE END OF A HUNDRED YEARS' WAR

DURING the past war, period 1914-18, the whole question of the shelter of mankind had reached a low ebb. Houses were either too old and unhealthy, or, alternatively, the new houses built under cover of philanthropic legislation, but immediately exploited by moneyed interests, were merely a shameless outrage on the rights of man. Technical shortcomings were involved, but also and mainly a complete disregard of the proper objective which can never be other than to *shelter the family unit*. Man's estate had sunk to the lowest depths. Animals were better housed; animals are always well cared for because profits depend upon their good health.

But it is inadmissible that the home should remain in its present state, a vitiating cage; inadmissible for the society of the machine age which disposes of perfection in technique: *open sesame* to the riches of the world. A little thought is enough to arrive at this conclusion. A little thought is enough to affect the needed change.

The hearth, that happy centre of the primitive family unit, that charmed circle established throughout all lands by the loving care of successive generations, that careful arrangement of life's detail, comfortable, warm-hearted, devised for the well-being of the children, for the greater dignity of man. (Amenities, an atmosphere to which our folklore, our traditions bear eloquent witness, in all countries, seem to have disappeared from the world to-day). A home is mechanical efficiency combined with sentiment. It was by means of these that architecture first began to grow. The Academies, on the other hand, by an abominable travesty of their natural function, have lost all interest in the home, preferring to concentrate upon the seats of the mighty! Homes indeed there are, spread all over the countryside but parodies of shelter. But we consider it a debt of honour to help reconstruct *the home*. And because the century's whole approach to life—our very reason for living at all—needs overhauling,

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this is where the modern architect steps in; it is he who will supply a proper and much needed shelter.

It has been thought to get this going under the aegis of figures, of an economy, of a barren materialism. Their reckoning has discounted the heart entirely. But to get mankind on the march again, to persuade them to leave the old familiar places (cobwebs and all), will require something more than narrow and dry statistics. What is needed is a vast ocean swell of goodwill, unanimous, overwhelming, What is needed is *faith*!

And in that way only could we invest the very depths of human nature with its inexhaustible resources: power and capacity for action, enthusiasm, love of conflict in a good cause, the inherent recognition of greatness, that *esprit de corps* which we find in armies, the song of brotherhood.

Yes, indeed, above techniques and theories we can see the light of poetry shine. Our age is teeming with lyric possibilities.

Many feel that society is selfish, bounded by narrow interests, commercial, base. Of which society, of which period, are we talking? There are two periods superimposed to-day, interwoven but at grips with each other. But we are speaking of the new age, magnet for all the lively emotions of the heart, an age which has already foreshadowed greatness in its preliminary works—rich and powerful.

Modern planning will bring to this new age its fundamental happiness, complete and for all. One can express this in three words, a poem in themselves: verdure, sun and space. And this would not entail disregarding the primary needs of a city, the requirements of useful work—very much the contrary.

The garment of mourning has been turned, and man who so long had watched the days go by in idle waste of all real values, is now overhauling and reassessing his own positive capacities.

Such problems might appear at first sight to belong to the domain of rationalism, pure and simple, and to represent little more than the daily task of officialdom, of the Administration. But actually, they were—and could only be—solved by means of a slow and strictly individual effort: they are an intrinsic product of the new spirit, conceived in disgust at the sight of that 'railroad civilisation' which, towards 1880, symbolised the lowest pitch of degradation to which both architecture and architects had fallen.

But reform got under way. The 'style of 1900', the *Modern*

Style, was not the arbitrary fantasy that some have been tempted to think, but a basic movement by which—but by means of a somewhat questionable point of view—natural forces were again brought into play. And from then on, architecture changed. And the ideology of architects began to change, too; architects had a change of heart and began to think again. The whole body of art came once more into the picture, art reanimated by a new sensibility. Plastic truths had been overhauled, materials had been rediscovered.

In France, more perhaps than in any other country, one finds a rich reserve of energy in almost every individual, and this energy is ready to burst out, ready to ally itself with the collective forces, if only some genuine objective can be shown. I have never played an active part in politics, having been entirely absorbed in town-planning; political questions are irrelevant and merely tend to confusion in my field. Town-planning, on the other hand, directs (and is directed by) fundamental issues: biology, sentiment, thought. All political parties go to extremes. There can only be a middle way in matters of planning; a river rolls along its bed; if it overflows and causes floods, we have catastrophe. Politics come within the realm of 'discussion', but planning is action in embryo.

I by no means endorse the principle of putting to the vote matters which leaders (the informed) ought to decide. That march past of the masses, in 1932, at Moscow, before the competition plans for the Soviet's Palace, had deplorable results. What can the crowd make of plans which are necessarily full of abstractions. The masses, on that occasion, turned automatically towards those inflated *pictures*, towards exhibits which were little more than 'stage settings'. And the fate of the Palace of the Soviets was sealed: a set-back.

On the other hand, it might be possible to elicit from the masses, by an eloquent appeal, by an appeal clearly setting forth the issues concerned, what they really think about certain measures proposed for their benefit. We tried that out in 1937, at the Paris Exhibition, by means of a kind of popular museum of modern town-planning. A few, perhaps, may have visited that vast exhibit which, like any Cinderella, was unable to find a home and finally got shoved in between the horses, the bulls and the pedigree pigs, and a model village dairy, at the Porte Maillot.

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A visitors' book was available for comments, and as each page was filled, it was nailed down to the preceding pages in order to stem the repercussion and effect of a volume of tirade, ballyragging and invective. During the months of August and September, the Provinces came to Paris, and Parisians went to the country.

Our first visitors' book echoes the 'Voice of the provinces'. Well! It is stupefying to note with what close attention our exhibits were examined, how seriously, with what feeling for the spirit of the age. Admittedly, all were not in agreement, but a large majority registered their emotion, even expressed their thanks for the importance of the work done; expressed also their desire that it might soon be put into effect; finally, called upon the authorities to 'get a move on', *since the plans were already in being* and clear for all to see . . . and conclusive.

In October and November, the Parisians came home, and then began a discourse (the old attack) very different from the considered, serious, well reasoned, and always weighty opinion of the Provinces. Then we were faced once more with invective, challenge, ravings. It was frank and lively, the insults could all be listed under the following formula: 'Not worth looking at; what this is, is obvious; I'm off.' To which was sometimes added: 'Madmen, freemasons, communists! They mustn't forget that we are in France.'

But such reactions did not come from more than about one-fifth of the attendance. A majority of the crowds once inside the enormous tent, that Kaaba of canvas, which had no framework and was itself a unique technical achievement, lapsed into silence and began a long and careful examination of the exhibits which were set out at a variety of levels. (This we were told by the guardian.) And in quiet concentration, this crowd even followed the guide's explanation for a full three-quarters of an hour.

The story of the guide himself is worth telling. It shows the potentiality which is latent at all levels of society in our country. We had asked for four watchmen and a guide. They sent us one ordinary watchman, that's all. The pavilion was finished just as I was recovering from a very serious illness. I interviewed the watchman, and left for Brittany. When I came back I found in the visitors' book much praise of this watchman who had become

a guide. And old friends, one after the other, kept saying to me, 'That fellow's a splendid guide; you've certainly trained him well!' What had really happened was this. He had started quite simply walking about his pavilion. He had looked at everything, read and understood. Pasting up damaged documents here, and nailing up others there; sweeping and watering to keep down the dust, he had begun to feel a genuine enthusiasm. And then he suddenly said to himself, 'This won't do. Instead of sitting about kicking my heels all day long, just waiting for closing time, I'm going to get a move on. I'm going to *do* something, going to explain these things which I like and approve'. He then approached groups of people and led them from stand to stand. After which, he said, '*One might as well do things properly*'.

Then he chose his moment: when a hundred people were dispersed all over the tent, he suddenly announced in stentorian tones: 'Ladies and gentlemen, gather round, and follow me; I will explain the exhibits'.

He developed into an orator, with all the cunning of the trade. It even proved profitable; his cap after every round was full of money.

There was a man potentially endowed and who was able to inspire innumerable other potentialities around him. That good lady of the village who has so kindly put at my disposal the room in which I am writing this book, said to me as soon as we met, 'You know, I went up to Paris in '37. The hour which I spent in your pavilion, looking at all those things and hearing them explained, was one of the finest moments of my life'.

Oh, planning of the new age, essential voice of man's craving for the highest!

Individuals of promise, revelations of depth and reliability, involving acts of devotion, gestures of faith, an intense desire to get something done, these have been part of my constant experience for the past fifteen years. I feel that one could well preach a crusade by means of modern town-planning, for it plumbs the very depths of being, it opens up perspectives of sunshine and happiness, it offers unrivalled opportunities as a vehicle for action.

This country is good-tempered, but its people are clear-cut and decided. The necessary foundation for a major effort is there. But

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we must preach a genuinely human doctrine, basic truths, constructive, a gospel of love and not of hate; we must engender the desire to seek wider horizons, thus gently detaching men from their barren sites, from that perverted vision which we now accept as the background of our daily lives.

The season of political ravings has gone by. Our people heard the war cries of the parties: rivalry, sarcasm, hatred.

But since 1934, signs have been written on the skies of France; we have had enough of rottenness. Our hearts are ready to expand, we try to improve the conditions of life. A few want that to mean conservation, protection, at last! But for a majority, it would mean 'to *acquire*'. Acquire what? Those conditions of decent living to which every man is entitled.

We have a right to what is going to be built because the needs of mankind, in future, will become the main objective of building. Most of our troubles come from the fact that we are always dealing with words, and not with *the plan*.

I repeat, it is a hundred years' war which is coming to an end. It started with the first locomotive. A hundred years during which everything was destroyed, slowly, with determination; everything, a whole civilisation. Is not destruction always the hallmark of war—that and a clean sweep? But during these hundred years we have also invented, prepared, outlined, initiated the principles and practice of a new civilisation. The contemporary dilemma finds no explanation in this hundred years' war, now drawing to a close. We can only divine a scale, the proportion of things to come, a dimension for to-morrow. And one understands now, since we are coming to the end of all this destruction, that reconstruction is about to start: immense, spread to the farthest horizons, universal. And since we are here concerned with architecture and town-planning, in order to raise the new home, in which work and happiness will combine, we must admit that foresight is not premature, that no scheme could be too vast, that no attempt at integration should be neglected. We must admit the urgency, admit that the needed scheme is complex, that a harmony must be the natural fruit of these hundred years' gestation—of these hundred years, often magnificent, impressive, despite their many ill-assorted often incompatible trends of thought. The majority, of course, have lived inside the epoch, neither seeing nor suspecting what was really taking place.

THE END OF A HUNDRED YEARS' WAR

The war is coming to an end, the brutal final episode of a century of struggle, ill-defined or virulent by turns; it will have opened many eyes.

Let us hope with the turn of events, for a renewal of the national will; let us utilise the accumulated voltage for the tasks of reconstruction.

POSTSCRIPT

8th June, 1940.

I am walking, on a lovely morning, down the deserted Avenue Victor Hugo—that avenue which in no way belongs to the real Paris.

My eyes light suddenly upon the covering band of a book in a window:

THIS IS VICTORY:

TO BE ABLE TO APPREHEND FROM AFAR;
TO BE ABLE TO DISTINGUISH WHAT IS AT HAND,
AND TO GIVE EVERYTHING A NEW NAME.

Apollinaire.

This poet died, a war casualty, in November 1918.

Twenty years had gone by and nothing had been given a new name, nothing had changed. Not one single item of all that concerns the rights and duties of a nation.

BIBLIOGRAPHY

WORKS BY THE SAME AUTHOR

COLLECTION DE L'ESPRIT NOUVEAU

- 1923 *Vers une architecture*. Editions Crès et Cie. (*Towards a New Architecture*. Architectural Press, 1947.)
- 1925* *Urbanisme*. Editions Crès et Cie.
- 1925 *L'Art décoratif d'aujourd'hui*. Editions Crès et Cie.
- 1926 *Almanach d'Architecture moderne*. Editions Crès et Cie.
- 1928 *Une maison—un palais*. Editions Crès et Cie.
- 1930* *Précisions*. Editions Crès et Cie.
- 1932 *Croisade*. Editions Crès et Cie.
- 1935 *Air Craft (L'Avion accuse)*. Studio, London.
- 1935 *La Ville radieuse*. Collection de l'Equipement de la civilisation machiniste. Editions de l'Architecture d'aujourd'hui.
- 1937* *Quand les cathédrales étaient blanches*. Editions Plon et Cie. (*When the Cathedrals were White*. Routledge.)
- 1938* *Des canons, des munitions, merci . . . des logis s.v.p.* Collection de l'Equipement de la civilisation machiniste. Editions de l'Architecture d'aujourd'hui.
- 1939* *L'Urbanisme et le lyrisme des temps nouveaux*. Editions 'Le Point' Colmar.
- 1940* *Plan de Buenos Aires 1940*. (Proposition d'un plan directeur réalisable par étapes.) Buenos Aires.
- 1941* *Destin de Paris*. Editions Sorlot, Clermont-Ferrand.
- 1941* (With François de Pierrefeu.) *La maison des hommes*. Editions Plon et Cie.

PERIODICALS

- 1919–1925 *L'Esprit Nouveau*. Revue internationale d'activité contemporaine.
- 1930–1932 *Plans*.
- 1933–1939 *Préludes*.

MONOGRAPHS

- BADOVICI, JEAN. *Œuvres complète*. (*L'Architecture vivante*.) 8 volumes. Editions Albert Morancé. Paris.
- STONOROV ET BÆSIGER. *Œuvres complète, 1912–1919*. Tome I. Editions Girsberger, Zurich.
- BÆSIGER. *Œuvres complète, 1929–1934*. Tome II. Editions Girsberger, Zurich.
- BILL, MAX. *Œuvres complète, 1934–1938*. Tome III. Editions Girsberger, Zurich.
- Le Corbusier*. Tokio.
- PIERREFEU, FRANÇOIS DE. *Le Corbusier*. Editions Crès et Cie.
- GAUTHIER, MAXIMILIAN, *Le Corbusier*. Dennis Dobson. (In preparation.)
- * These books deal mainly with town-planning.

This book is set in eleven-point Walbaum, one point leaded.

A 'Modern' of the early XIXth century, it is a popular design for high-class bookwork both in Great Britain and on the Continent. The squareness of the letters, noticeable in the capital R, is one of its outstanding characteristics. Its accompanying medium, used for Part and Chapter headings, shows slight differences of design, particularly the e and a. Lovers of fine type-design will recognise Walbaum as one of the outstanding book-faces available for good production.

Typography by H. Jacob.

